SHARP SERVICE MANUAL

No. S4031XL60H///

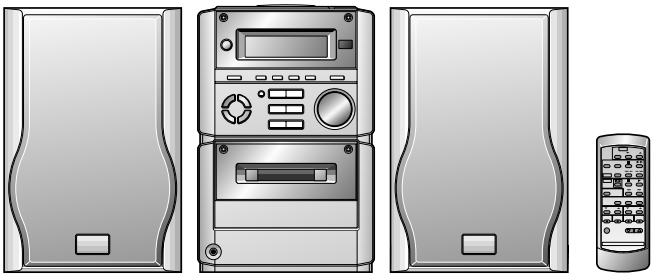


Illustration: XL-60H

Illustration: XL-70H

XL-60H
XL-70H

XL-60H/XL-70H Micro Component System consisting of XL-60H/ XL-70H (main unit) and CP-XL60H/CP-XL70H (speaker system).

• In the interests of user-safety the set should be restored to its original condition and only parts identical to those specified should be used.

• **Note for users in U.K.**
Recording and playback of any material may require consent, which SHARP is unable to give. Please refer particularly to the provisions of Copyright Act 1956, the Dramatic and Musical Performers Protection Act 1956, the Performers Protection Acts 1963 and 1972 and to any subsequent statutory enactments and orders.

CONTENTS

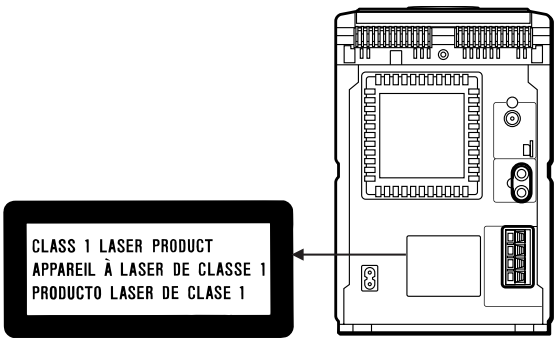
SHARP CORPORATION

SAFETY PRECAUTION FOR SERVICE MANUAL

Precaution to be taken when replacing and servicing the Laser Pickup.

The AEL (Accessible Emission Level) of Laser Power Output for this model is specified to be lower than Class I Requirements. However, the following precautions must be observed during servicing to protect your eyes against exposure to the Laser beam

(1) When the cabinet has been removed, the power is turned on without a compact disc, and the Pickup is on a position outer than the lead-in position, the Laser will light for several seconds to detect a disc. Do not look into the Pickup Lens.
(2) The Laser Power Output of the Pickup inside the unit and replacement service parts have already been adjusted prior to shipping.
(3) No adjustment to the Laser Power should be attempted when replacing or servicing the Pickup.
(4) Under no circumstances look directly into the Pickup Lens at any time.
(5) CAUTION - Use of controls or adjustments, or performance of procedures other than those specified herein may result in hazardous radiation exposure.

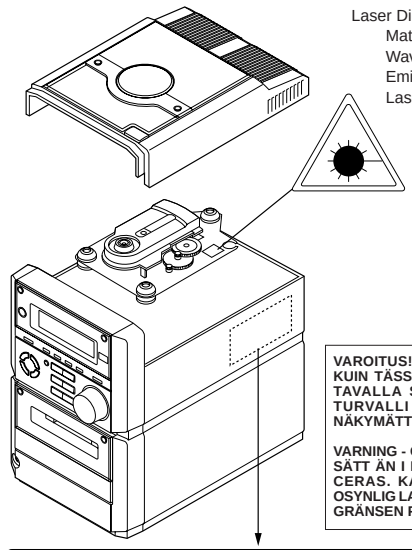


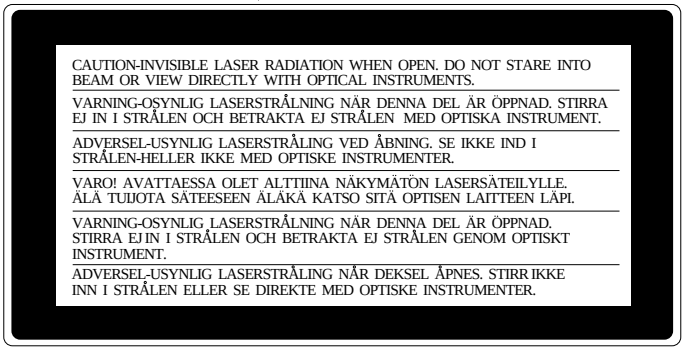
CAUTION

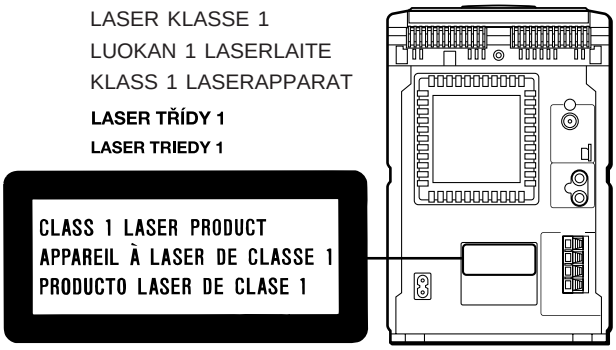
Use of controls, adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

As the laser beam used in this compact disc player is harmful to the eyes, do not attempt to disassemble the cabinet. Refer servicing to qualified personnel only.

(For U.K.)







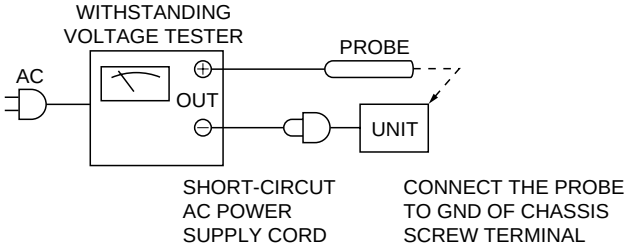
(For Europe)

IMPORTANT SERVICE NOTES (FOR U.K. ONLY)

Before returning the unit to the customer after completion of a repair or adjustment it is necessary for the following withstand voltage test to be applied to ensure the unit is safe for the customer to use.

Setting of Withstanding Voltage Tester and set.

Set name	set value
Withstanding Voltage Tester	
Test voltage	4,240 VPEAK 3,000 VRMS
Set time	6 secs
Set current(Cutoff current)	4 mA
Unit	
Judgment	
OK: The “GOOD” lamp lights. NG: The “NG” lamp lights and the buzzor sounds.	



FOR A COMPLETE DESCRIPTION OF THE OPERATION OF THIS UNIT, PLEASE REFER TO THE OPERATION MANUAL.

SPECIFICATIONS

XL-60H/70H

● General

Power source: AC 230 V, 50 Hz

Power consumption: 50 W

Dimensions: Width; 160 mm (6-5/16")
Height; 241 mm (9-1/2")
Depth; 298 mm (11-3/4")

Weight: 3.6 kg (7.9 lbs.)

● Amplifier section

Output power: (For Europe) PMPO; 120 W (total)
MPO; 60 W (30 W + 30 W) (DIN 45 324)
RMS; 40 W (20 W + 20 W) (DIN 45 324)

Output power: (For U.K.) RMS; 40 W (20 W + 20 W) (10 % T.H.D.)

Output terminals: Speakers; 4 ohms
Headphones; 16-50 ohms (recommended; 32 ohms)
CD digital output (optical)

Input terminals: Video/Auxiliary (audio signal); 500 mV/47 k ohms

● Tuner section

Frequency range: FM; 87.5-108 MHz
AM; 522-1,620 kHz

● Compact disc player section

Type: Compact disc player

Signal readout: Non-contact, 3-beam semi-conductor laser pickup

D/A converter: 1-bit D/A converter

Filter: 8-times oversampling digital filter

Frequency response: 20 - 20,000 Hz

Wow and flutter: Unmeasurable (less than 0.001% W. peak)

● Cassette deck section

Frequency response: 50 - 14,000 Hz (Normal tape)

Signal/noise ratio: 50 dB

Wow and flutter: (For Europe) 0.3 % (DIN 45 511)

Wow and flutter: (For U.K.) 0.25 % (WRMS)

● Speaker section

CP-XL60H

Type: 2-way [10 cm (4") woofer and 1.5 cm (9/16") tweeter]

Rated input power: 20 W

Maximum input power: 40 W

Impedance: 4 ohms

Dimensions: Width; 160 mm (6-5/16")
Height; 240 mm (9-1/2")
Depth; 190 mm (7-7/16")

Weight: 1.8 kg (4.0 lbs.)/each

CP-XL70H

Type: 2-way [10 cm (4") woofer and 2.5 cm (1") semi dome tweeter]

Rated input power: 20 W

Maximum input power: 40 W

Impedance: 4 ohms

Dimensions: Width; 160 mm (6-5/16")
Height; 240 mm (9-1/2")
Depth; 189 mm (7-1/16")

Weight: 2.4 kg (5.3 lbs.)/each

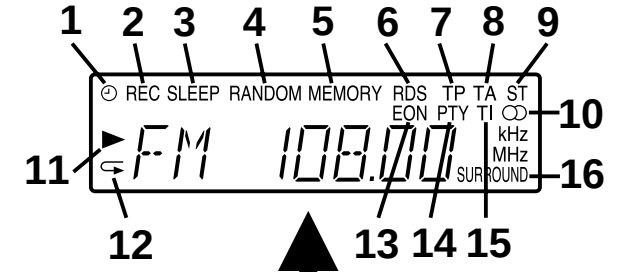
Specifications for this model are subject to change without prior notice.

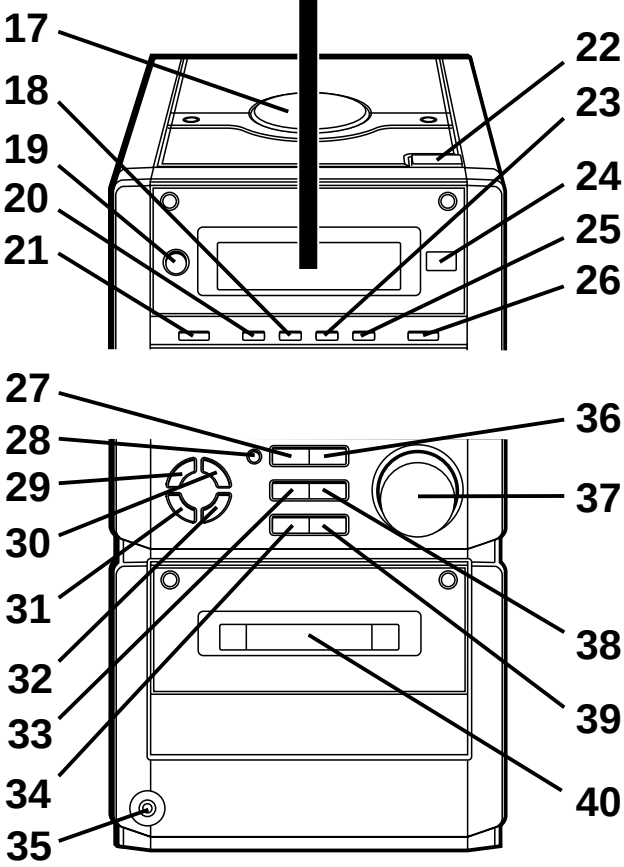
NAMES OF PARTS

XL-60H/70H

■ Front panel

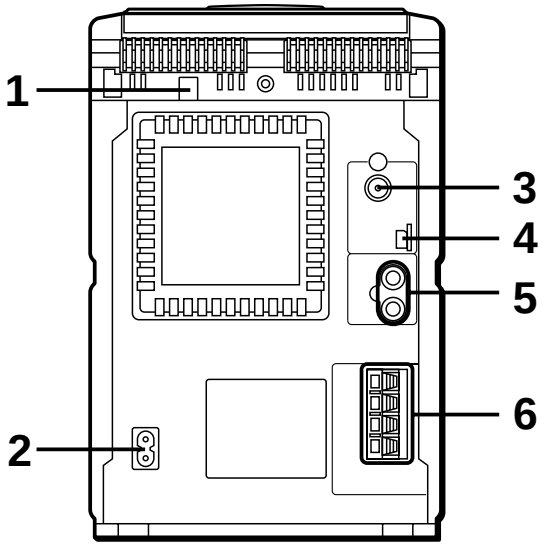
1. Timer Indicator
2. Record Indicator
3. Sleep Indicator
4. (CD) Random Indicator
5. (CD/TUNER) Memory Indicator
6. RDS Indicator
7. Traffic Programme Indicator
8. Traffic Announcement Indicator
9. FM Stereo Mode Indicator
10. FM Stereo Indicator
11. (CD) Play Indicator
12. (CD) Repeat Indicator
13. EON Indicator
14. Programme Type Indicator
15. Traffic Information Indicator
16. Surround Indicator
17. CD Compartment
18. EON Button
19. On/Stand-by Button
20. Programme Type/Traffic Information Search Button
21. Surround Button
22. CD Open/Close Button
23. ASPM Button
24. Remote Control Sensor
25. Display Mode Selector Button
26. Volume Select Button
27. (CD/TAPE) Stop Button
    (TUNER) Memory Clear Button
28. Record Pause Button
29. Bass/Treble Selector Button
30. Memory/Set Button
31. Clock/Timer/Sleep Button
32. Band Selector Button
33. (CD) Review Button
    (TAPE) Rewind Button
    (TUNER) Tuning Down Button
34. Function Selector Button
35. Headphone Socket
36. (CD) Play/Pause Button
    (TAPE) Play Button
37. Jog Dial
38. (CD) Cue Button
    (TAPE) Fast Forward Button
    (TUNER) Tuning Up Button
39. Volume/Jog Dial Selector Button
40. Cassette Compartment





■ Rear panel

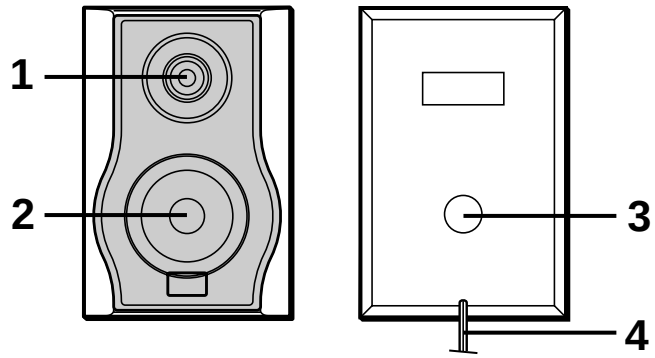
1. CD Digital Output Socket
2. AC Power Input Socket
3. FM 75 ohms Aerial Socket
4. AM Loop Aerial Input Socket
5. Video/Auxiliary (Audio Signal) Input Sockets
6. Speaker Terminals



■ Speaker section

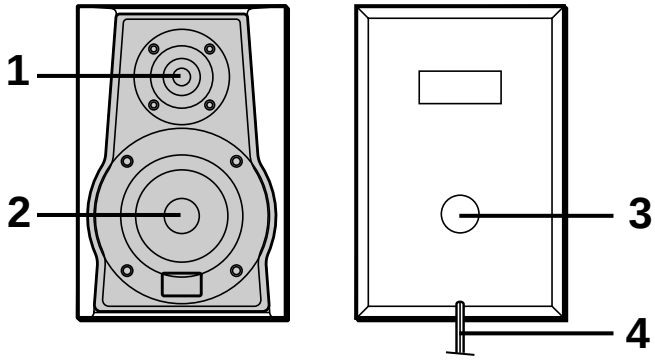
CP-XL60H

1. Tweeter
2. Woofer
3. Bass Reflex Duct
4. Speaker Wire



CP-XL70H

1. Tweeter
2. Woofer
3. Bass Reflex Duct
4. Speaker Wire



XL-60H/70H

■ Remote control

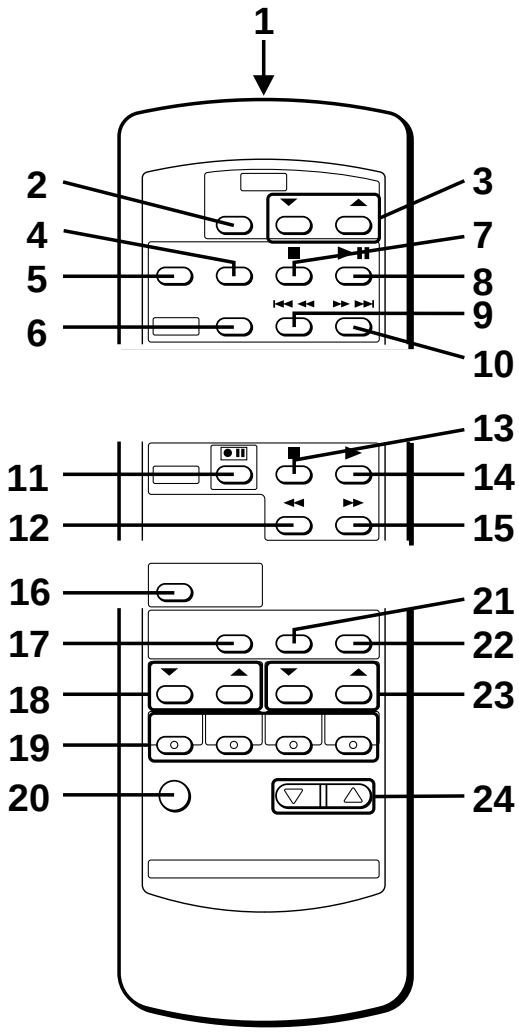
1. Remote Control Transmitter LED

● Tuner control section
2. Programme Type/Traffic Information Search Button
3. Preset Up/Down Buttons

● CD control section
4. Clear Button
5. Random/Repeat Button
6. Memory Button
7. Stop Button
8. Play/Pause Button
9. Track Down/Review Button
10. Track Up/Cue Button

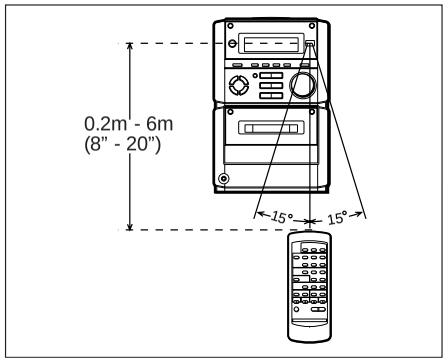
● Tape control section
11. Record Pause Button
12. Rewind Button
13. Stop Button
14. Play Button
15. Fast Forward Button

● Common section
16. Surround Button
17. Sleep Button
18. Bass Up/Down Buttons
19. Function Selector Buttons
20. On/Stand-by Button
21. Timer Button
22. Clock Button
23. Treble Up/Down Buttons
24. Volume Up/Down Buttons



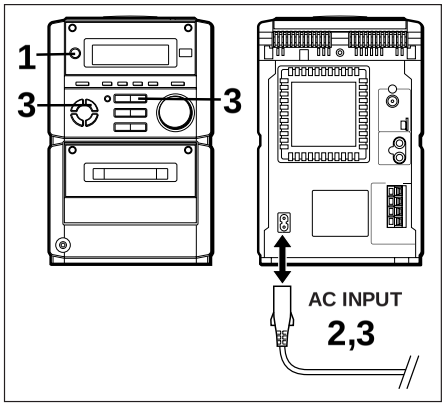
PREPARATION FOR USE

■ Remote control



Notes concerning use:
- Replace the batteries if the operating distance is reduced or if the operation becomes erratic.
- Periodically clean the transmitter LED on the remote control and the sensor on the main unit with a soft cloth.
- Exposing the sensor on the main unit to strong light may interfere with operation. Change the lighting or the direction of the unit.
- Keep the remote control away from moisture, excessive heat, shock, and vibrations.

RESETTING THE MICROCOMPUTER



Reset the microcomputer under the following conditions:
- To erase all of the stored memory contents (clock and timer settings, and tuner and CD presets).
- If the display is not correct.
- If the operation is not correct.

1 Press the ON/STAND-BY button to enter the stand-by mode.

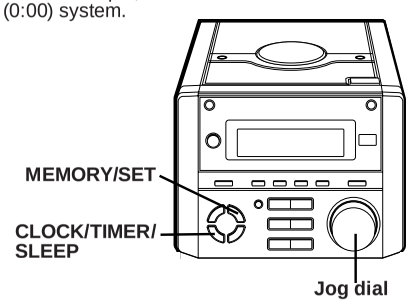
2 Unplug the AC power lead from the AC INPUT socket on this unit.

3 Whilst pressing down the MEMORY/SET button and the ► button, plug the AC power lead into the AC INPUT socket on this unit.

Caution:
- The operation explained above will erase all data stored in memory, such as clock and timer settings, and tuner and CD presets.

SETTING THE CLOCK

(Main unit operation)
In this example, the clock is set for the 24-hour (0:00) system.



1 Press the CLOCK/TIMER/SLEEP button to enter the time check mode.

2 Within 3 seconds, press the MEMORY/SET button.

3 Turn the jog dial to select the time display mode.

0:00 ⟷ AM 12:00

"0:00" → The 24-hour display will appear. (0:00 - 23:59)
"AM 12:00" → The 12-hour display will appear. (AM 12:00 - PM 11:59)
- Note that this can only be set when the unit is first installed or it has been reset (see page 29).

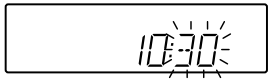
4 Press the MEMORY/SET button.

5 Adjust the hour by turning the jog dial.

- When the jog dial is turned one click clockwise, the time will increase by 1 hour. When it is turned one click anti-clockwise, the time will decrease by 1 hour.
  Keep turning the jog dial to change the time continuously.
- When the 12-hour display is selected, "AM" will change automatically to "PM".

6 Press the MEMORY/SET button.

7 Adjust the minutes by turning the jog dial.



- When the jog dial is turned one click clockwise, the time will increase by 1 minute. When it is turned one click anti-clockwise, the time will decrease by 1 minute.
  Keep turning the jog dial to change the time continuously.
- The hour setting will not advance even if minutes advance from "59" to "00".

8 Press the MEMORY/SET button.

- The clock starts operating from "0" second. (Seconds are not displayed.)

Note:
- In the event of a power failure or when the AC power lead is disconnected, the clock display will go out.
  When the AC power supply is restored, the clock display will flash on and off to indicate the time when the power failure occurred or when the AC power lead was disconnected.
  If this happens, follow the procedure below to change the clock time.

To change the clock time:
Perform steps 1, 2 and 4 - 8 above.

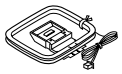
To change the time display mode:

1 Perform steps 1 - 3 in the section "RESETTING THE MICROCOMPUTER",.

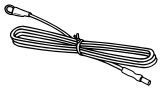
2 Perform steps 1 - 8 above.

1 Check the supplied accessories

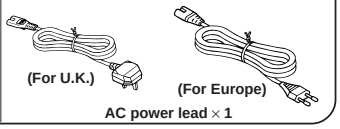
Remote control × 1



AM loop aerial ×1



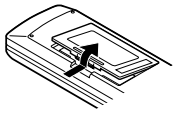
FM aerial × 1



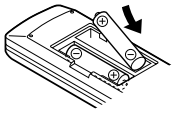
AC power lead × 1

2 Putting batteries into the remote control

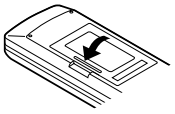
1 Remove the battery cover.



2 Insert the batteries.

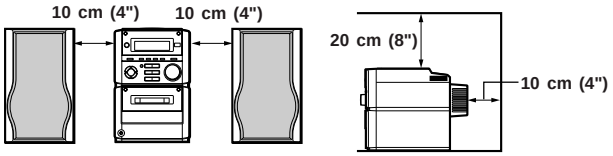


3 Replace the battery cover.



● 2 “AA” size batteries (UM/SUM-3, R6, HP-7 or similar)

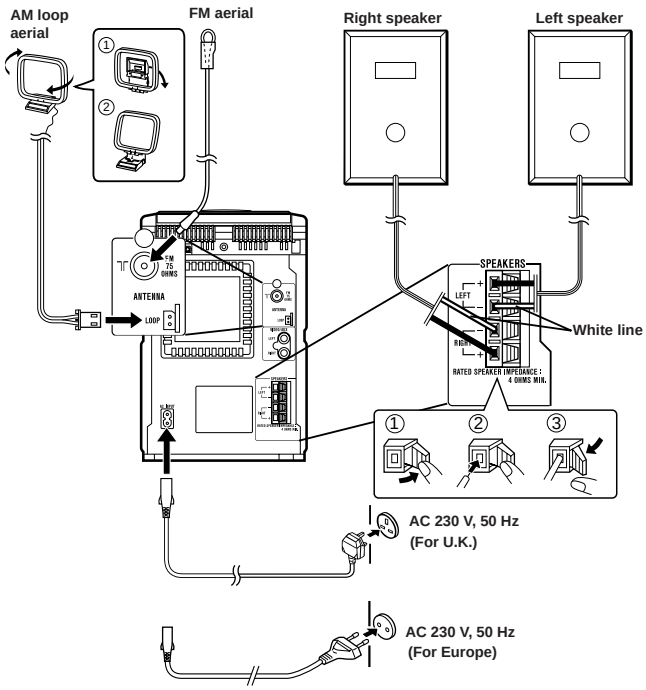
3 Placing the system



4 Connections

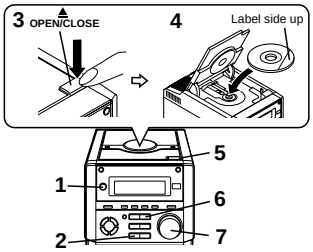
1 Connect the AM and FM aerials.

2 Connect the speaker system.



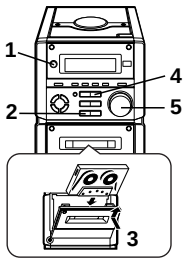
3 Connect the AC power lead.

5 Listening to a CD



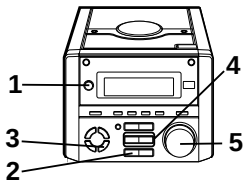
1 Press the ON/STAND-BY button to turn the power on.
2 Press the FUNCTION button until “CD” or “NO DISC” appears.
3 Press the ▲ OPEN/CLOSE button to open the CD compartment.
4 Place a CD on the spindle.
5 Close the CD compartment by pushing the ▲ OPEN/CLOSE button.
6 Press the ►/CD ❚❚ button.
7 Adjust the VOLUME control.

6 Listening to a tape



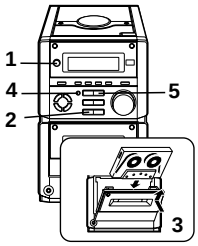
1 Press the ON/STAND-BY button to turn the power on.
2 Press the FUNCTION button until “TAPE” appears.
3 Load a cassette.
4 Press the ► button.
5 Adjust the VOLUME control.

7 Listening to the radio



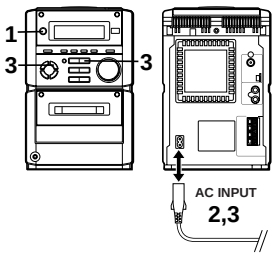
1 Press the ON/STAND-BY button to turn the power on.
2 Press the FUNCTION button until “FM” or “AM” appears.
3 Press the BAND button to select FM ST, FM or AM.
4 Press the TUNING (∨ or ∧) button to tune into a station.
5 Adjust the VOLUME control.

8 Recording from a CD



1 Press the ON/STAND-BY button to turn the power on.
2 Press the FUNCTION button until “CD” or “NO DISC” appears.
3 Load a CD and a recordable cassette.
4 Press the REC PAUSE button.
5 Press the ► button.

● Resetting the micro computer



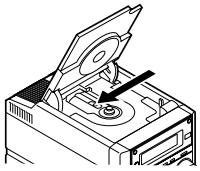
If this product is subjected to strong external interference (mechanical shock, excessive static electricity, abnormal supply voltage due to lightning, etc.) or if it is operated incorrectly, it may malfunction or the display may not function correctly. If such a problem occurs, do the following:

1 Press the ON/STAND-BY button to enter the stand-by mode.
2 Unplug the AC power lead from the AC INPUT socket on this unit.
3 Whilst pressing down the MEMORY/SET button and the ► button, plug the AC power lead into the AC INPUT socket on this unit.

Caution:

● The operation explained above will erase all data stored in memory, such as clock and timer settings, and tuner and CD presets.

● CD pickup cleaning



● Do not touch the laser pickup lens. If fingerprints or dust accumulate on the pickup, clean it gently with a dry cotton swab.

DISASSEMBLY

Caution on Disassembly

Follow the below-mentioned notes when disassembling the unit and reassembling it, to keep it safe and ensure excellent performance:

1. Take cassette tape and compact disc out of the unit.
2. Be sure to remove the power supply plug from the wall outlet before starting to disassemble the unit.
3. Take off nylon bands or wire holders where they need to be removed when disassembling the unit. After servicing the unit, be sure to rearrange the leads where they were before disassembling.
4. Take sufficient care on static electricity of integrated circuits and other circuits when servicing.

XL-60H/70H

STEP	REMOVAL	PROCEDURE	FIGURE
1	Side Panel(Left/Right)	1. Screw ..... (A1) x8	8-1
2	Top Cabinet	1. Screw ..... (B1) x1 2. Socket ..... (B2) x2	8-1
3	Rear Panel	1. Screw ..... (C1) x3 2. Screw ..... (C2) x2	8-1
4	Power Amp. PWB	1. Screw ..... (D1) x1 2. Socket ..... (D2) x2	8-2
5	Main PWB/ Headphones PWB	1. Screw ..... (E1) x3 2. Screw ..... (E2) x2 3. Bracket ..... (E3) x1 4. Socket ..... (E4) x3 5. Flat wire ..... (E5) x1 6. Socket ..... (E6) x1	8-3
6	Jog Switch PWB	1. Socket ..... (F1) x1 2. Screw ..... (F2) x2 3. Knob ..... (F3) x1	8-3
7	Display PWB/ LED PWB (With Jog Motor Holder)	1. Screw ..... (G1) x3 2. Screw ..... (G2) x3 3. Bracket ..... (G3) x1 4. Socket ..... (G4) x1 5. Hook ..... (G5) x2 6. Hook ..... (G6) x2	8-3
8	Front Panel	1. Screw ..... (H1) x1 2. Socket ..... (H2) x1 3. Screw ..... (H3) x1	8-3
9	Power PWB	1. Screw ..... (J1) x4 2. Screw ..... (J2) x1 3. Screw ..... (J3) x1 4. Bracket ..... (J4) x1	8-3
10	Tape Mechanism	1. Open the cassette holder 2. Screw ..... (K1) x4	9-1
11	CD PWB/ Open Close Switch PWB/CD Lid PWB (Note)	1. Screw ..... (L1) x6 2. Socket ..... (L2) x4 3. Hook ..... (L3) x1	9-2
12	Digital Out PWB	1. Socket ..... (M1) x1 2. Screw ..... (M2) x1	9-2
13	CD Mechanism	1. Screw ..... (N1) x3 2. Screw ..... (N2) x3	9-3

Note:

After removing the connector for the optical pickup from the connector, wrap the conductive aluminium foil around the front end of connector remove to protect the optical pickup from electrostatic damage.

XL-60H/70H

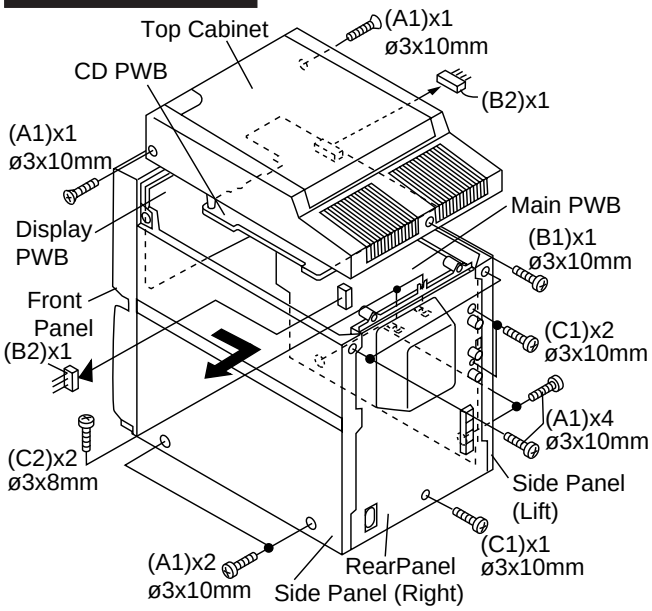


Figure 8-1

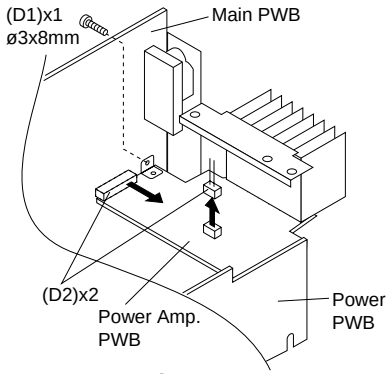


Figure 8-2

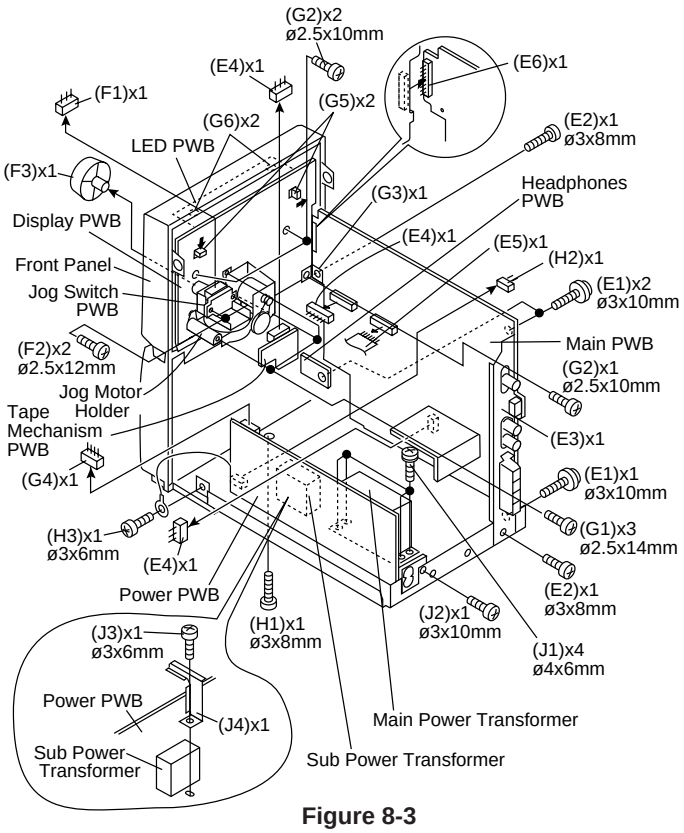


Figure 8-3

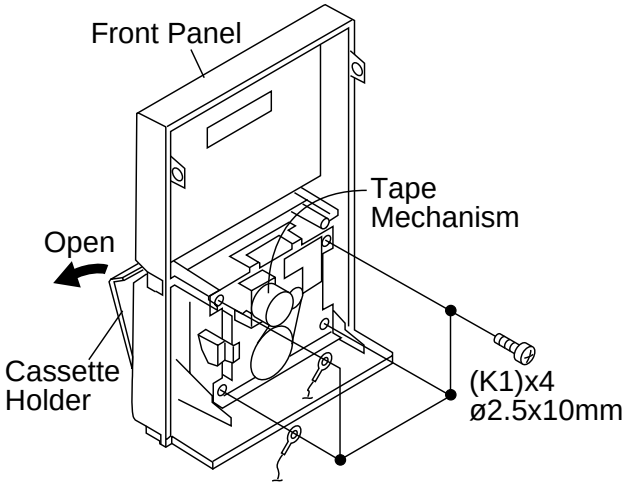


Figure 9-1

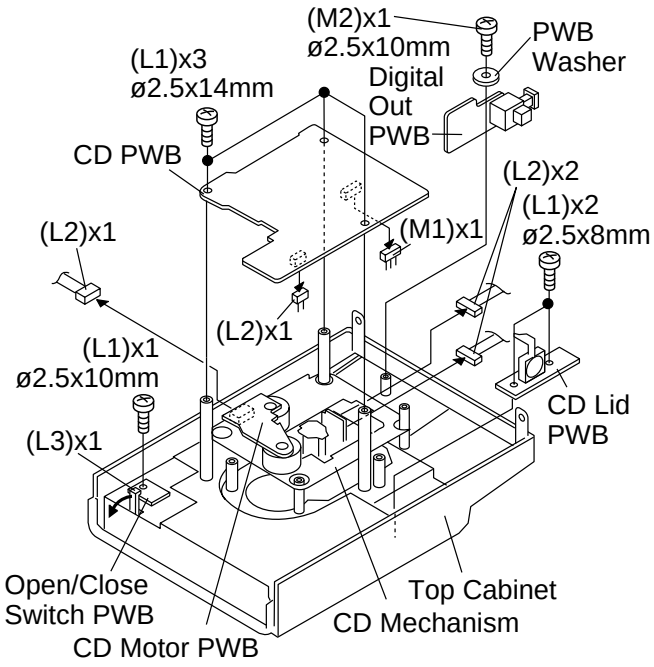


Figure 9-2

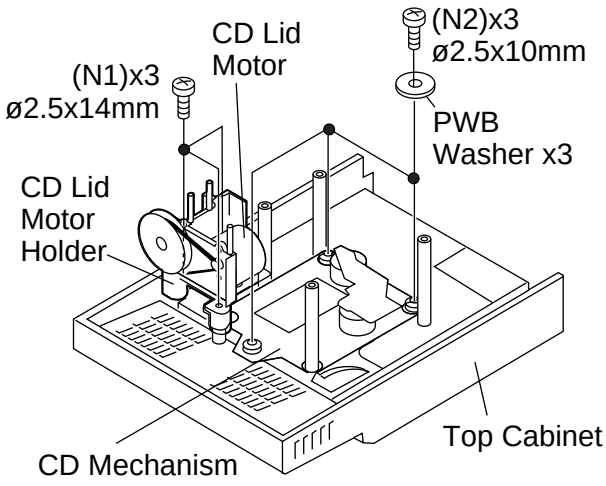


Figure 9-3

CP-XL60H			
STEP	**REMOVAL**	**PROCEDURE**	**FIGURE**
1	Speaker	1. Net Frame ..... (A1) x1 2. Front panel ..... (A2) x1 3. Screw ..... (A3) x4	9-4

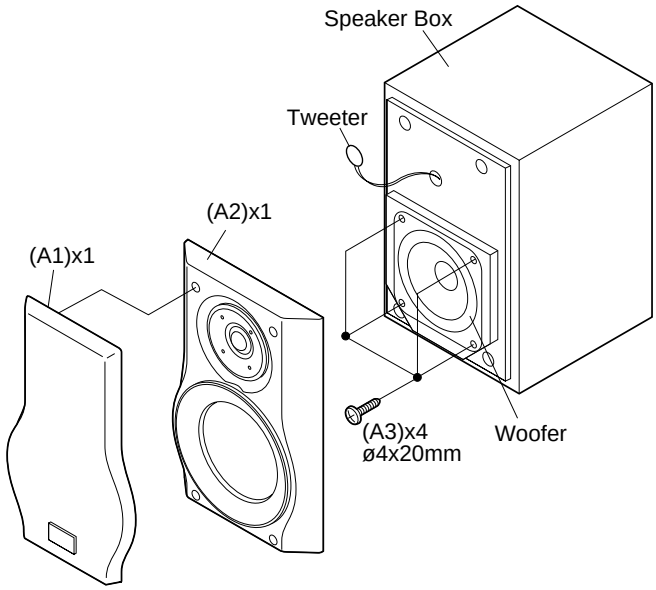


Figure 9-4

CP-XL70H			
STEP	**REMOVAL**	**PROCEDURE**	**FIGURE**
1	Speaker	1. Net Frame ..... (A1) x1 2. Screw ..... (A2) x4 2. Woofer Ring ..... (A3) x1 4. Screw ..... (A4) x4	9-5

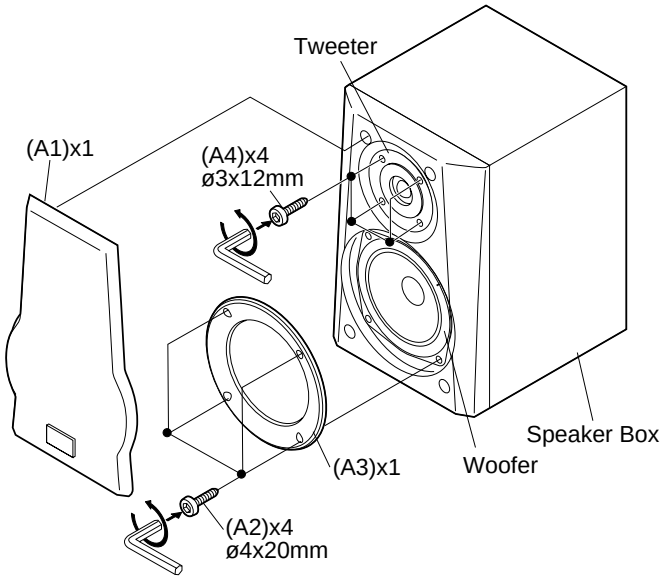


Figure 9-5

REMOVING AND REINSTALLING THE MAIN PARTS

TAPE MECHANISM SECTION

Perform steps 1 to 8 and 10 of the disassembly method to remove the tape mechanism. (See page 8.)

How to remove the record / playback and erase heads (See Fig. 10-1.)

1. Remove the screws (A1) x 2 pcs., to remove the erase head.
2. Remove the screws (A2) x 2 pcs., to remove the record/ playback head.

Note:
After replacing the heads and performing the azimuth adjustment, be sure to apply screwlock.

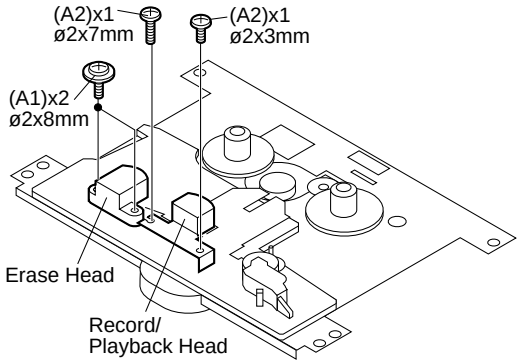


Figure 10-1

How to remove the pinch roller (See Fig. 10-2.)

1. Carefully bend the pinch roller pawl in the direction of the arrow **<A>**, and remove the pinch roller (B1) x 1 pc., upwards.

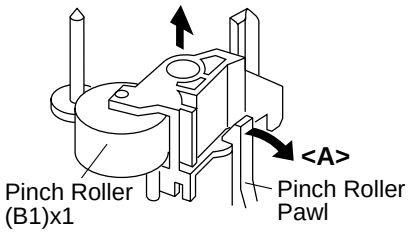


Figure 10-2

How to remove the belts (See Fig. 10-3.)

1. Remove the main belt (C1) x 1 pc., from the motor pulley.
2. Remove the FF/REW belt (C2) x 1 pc., from the REW/FF roller.
3. Put on the belts in the reverse order of removal.

Note:
When putting on the belt, ascertain that the belt is not twisted, and clean it.

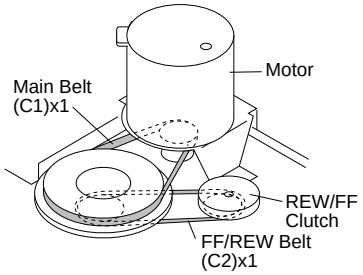


Figure 10-3

How to remove the motor (See Figs. 10-4.)

1. Remove the mainbelt.
2. Remove the screws (D1) x 2 pcs., to remove the motor bracket.
3. Remove the screws (D2) x 3 pcs., to remove the motor.

Note:
When mounting the motor, pay attention to the motor mounting angle

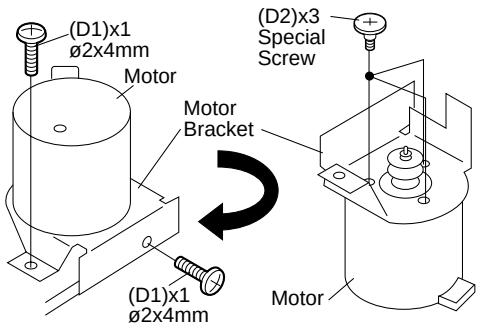


Figure 10-4

How to remove the flywheel (See Fig. 10-5.)

1. Remove the belt.
2. Remove the stop washer (E1) x 1 pc., with a small precision screwdriver to extract the flywheel from the capstan metal.

Note:
When the stop washer is deformed or damaged, replace it with a new one.

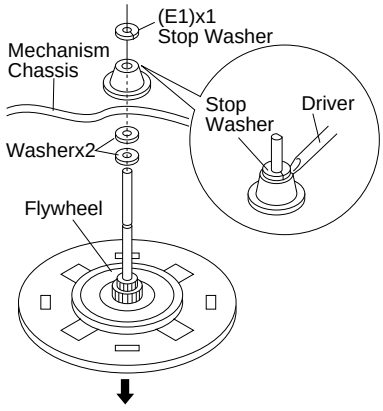


Figure 10-5

How to reinstall the parts

Install each part in the reverse order of the removal with care.

How to remove the tape mechanism PWB (See Fig. 11-1.)

1. Remove the screws (F1) x 1 pc., to remove the tape mechanism PWB.
2. Remove the screws (F2) x 1 pc.
3. Remove the solder joints (F3) x 2 pcs., to remove the tape mechanism PWB.

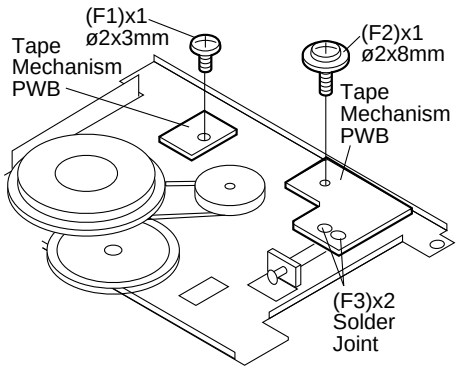


Figure 11-1

How to remove the jog motor (See Figs. 11-2.)

1. Remove the side panel and top cabinet.
2. Remove the jog belt (G1) x 1 pc., from the motor pulley.
3. Remove the screws (G2) x 2 pcs., to remove the jog motor.

Note:
When putting on the belt, ascertain that the belt is not twisted, and clean it.

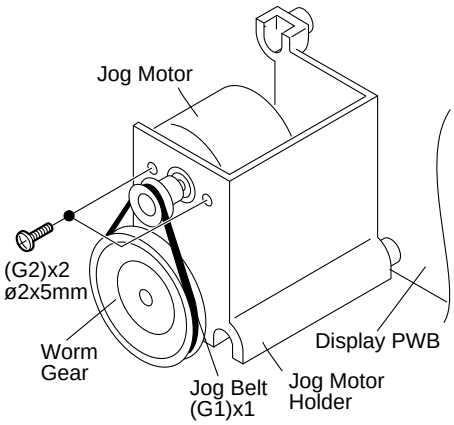


Figure 11-2

How to remove the CD lid motor (See Figs. 11-3.)

1. Remove the CD PWB.
2. Remove the belt (H1) x 1 pc., from the motor pulley.
3. Remove the screws (H2) x 2 pcs., to remove the CD Lid motor.

Note:
When putting on the belt, ascertain that the belt is not twisted, and clean it.

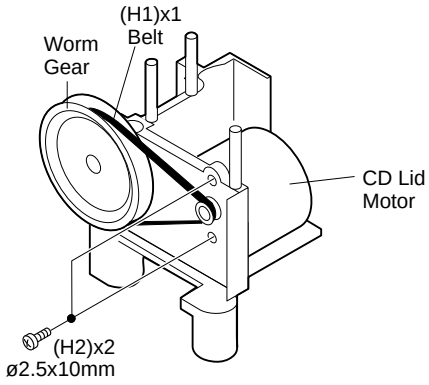


Figure 11-3

CD MECHANISM SECTION

Perform steps 1, 2 and 10 to 12 of the disassembly method to remove the CD mechanism.

How to remove the pickup (See Fig. 11-4)

1. Remove the mechanism cover, paying attention to the pawls (A1) x 4 pcs.
2. Remove the screws (A2) x 2 pcs., to remove the shaft (A3) x 1 pc.
3. Remove the stop washer (A4) x 1 pc., to remove the gear (A5) x 1 pc.
4. Remove the pickup.

Note:
After removing the connector for the optical pickup from the connector, wrap the conductive aluminium foil around the front end of connector remove to protect the optical pickup from electrostatic damage.

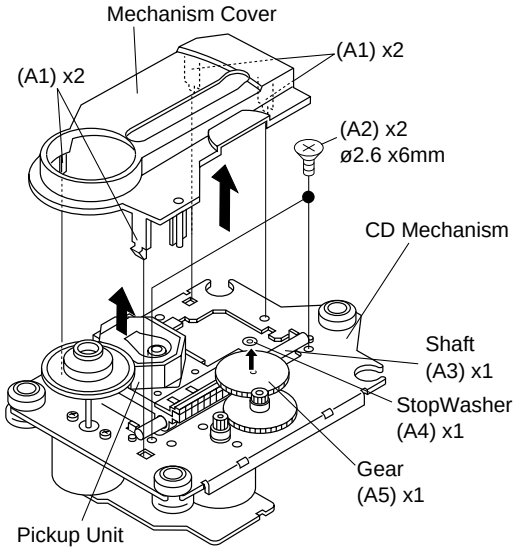


Figure 11-4

ADJUSTMENT

MECHANISM SECTION

• Driving Force Check

Torque Meter	Specified Value
Play: TW-2412	Over 80 g

• Torque Check

Torque Meter	Specified Value
Play: TW-2111	30 to 60 g. cm
Fast forward: TW-2231	55 to 140 g.cm
Rewind: TW-2231	55 to 140 g.cm

• Tape Speed

Test Tape	Adjusting Point	Specified Value	Instrument Connection
MTT-111	Variable resistor in motor.(M901)	3,000 ± 90 Hz	Headphone terminal

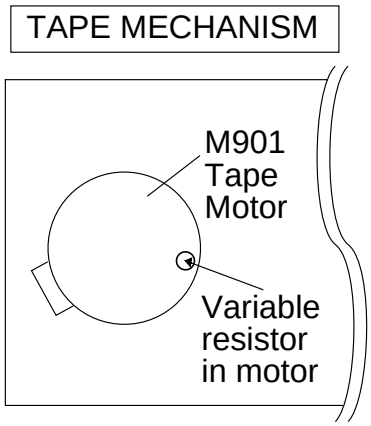


Figure 12-1 ADJUSTMENT POINT

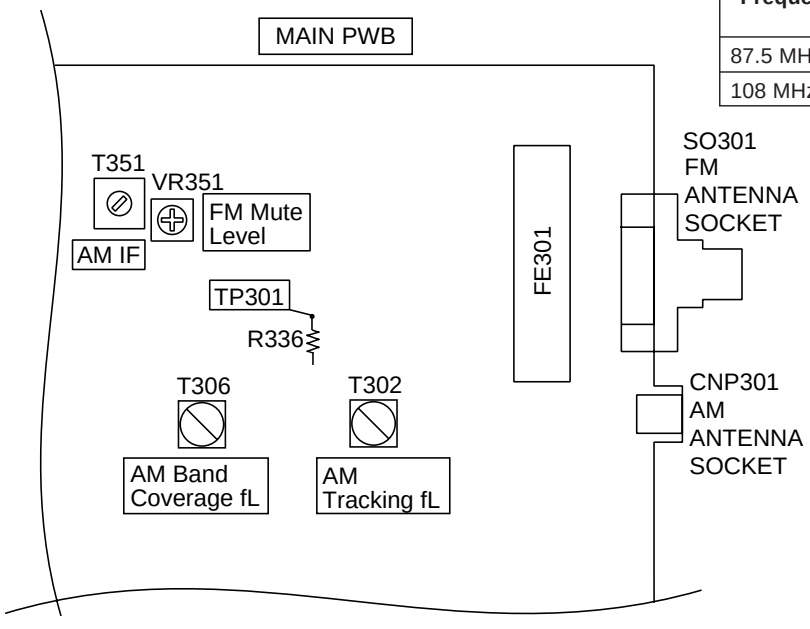


Figure 12-2 ADJUSTMENT POINTS

TUNER SECTION

fL: Low-range frequency
fH: High-range frequency

• AM IF/RF

Signal generator: 400 Hz, 30%, AM modulated

Frequency	Frequency	Display	Setting/ Adjusting Parts	Instrument Connection
AM IF	450 kHz	1,620 kHz	T351	*1
AM Band Coverage	—	522 kHz	(fL): T306 1.1 ± 0.1 V	*2
AM Tracking	990 kHz	990 kHz	(fL): T302	*1

*1. Input: Antenna, Output: Speaker Terminal
*2. Input: Input is not connected, Output: TP301

• Setting the Test Mode

Keeping the FF/FWD button and MEMORY/SET button pressed, turn on POWER. Then, the frequency is initially set in the memory as shown in Table. Call it with the JOG DIAL knob to use it for adjustment and check of tuner circuit.

Preset No.	FM	Preset No.	AM
1	87.50 MHz	6	522 kHz
2	108.00 MHz	7	1,620 kHz
3	98.00 MHz	8	990 kHz
4	90.00 MHz	9	603 kHz
5	106.00 MHz	10	1,404 kHz

• FM Mute Level

Signal generator: 1 kHz, 40 kHz dev., FM modulated

Frequency	Display	Adjusting Parts	Instrument Connection
98.00 MHz (30 dBμV)	98.00 MHz	VR351*1	Input: SO301 Output: Speaker Terminal

*1. Adjust so that an output signal appears.

• Check FM VT

Signal generator: 1 kHz, 40 kHz dev., FM modulated

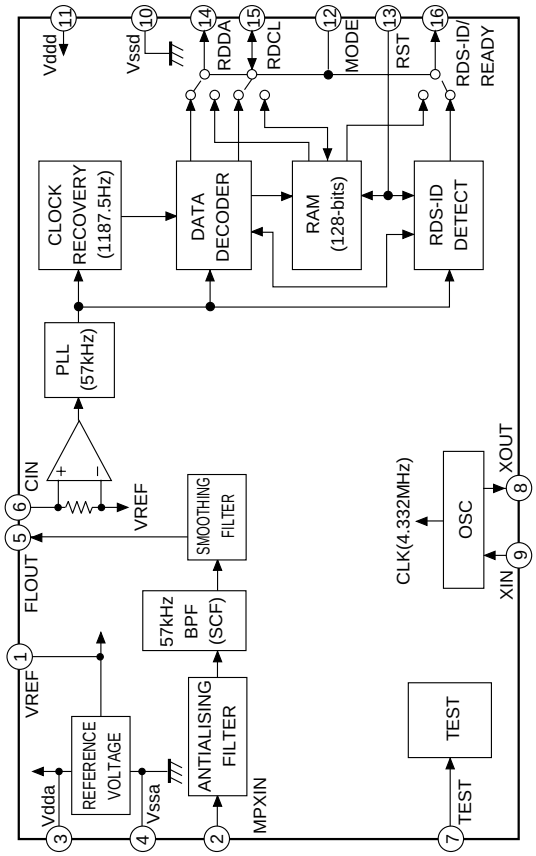
Frequency	Display	Check Point	Instrument Connection
87.5 MHz	87.5 MHz	2.2 V ± 0.7 V	TP301
108 MHz	108 MHz	7.3 V ± 1.0 V	TP301

RDS

IC521 VHiLC72723M-1: RDS Circuit (LC72723M)

Pin No.	Port Name	Function
1	VREF	Reference voltage output (Vdda/2).
2	MPXIN	Baseband (multiplexed) signal input.
3	Vdda	Analog power supply (+5V).
4	Vssa	Analog ground.
5	FLOUT	Subcarrier output (filter output).
6	CIN	Subcarrier input (comparator input).
7	TEST	Test input.
8	XOUT	Crystal oscillator output (4.332MHz).
9	XIN	Crystal oscillator input (external reference signal input).
10	Vssd	Digital ground.
11*	Vddd	Digital power supply (+5V).
12	MODE	Read mode setting (0 : master, 1: slave).
13	RST	RDS-ID/RAM reset (positive polarity).
14	RDDA	RDS data output.
15*	RDCL	RDS clock output (master mode)/ RDS clock input (slave mode).
16*	RDS-ID/ READY	RDS-ID/READY output (negative polarity).

In this unit, the terminal with asterisk mark (*) is (open) terminal which is not connected to the outside.



RDS (Radio Data System) OPERATION

RDS is a broadcasting service which a growing number of FM stations are now providing. It allows these FM stations to send additional signals along with their regular programme signals. For example, the stations send their station names, and information about what type of programme they broadcast, such as sports or music, etc.
When tuned to an FM station providing the RDS service, RDS will appear, the station frequency (and then the station name if sent) will be displayed.
The TP (Traffic Programme) will appear on the display when the received broadcast carries traffic announcements, and the TA (Traffic Announcement) will appear whilst a traffic announcement is being received.
EON will appear whilst the EON (Enhanced Other Networks information) data is being broadcast.

Note:
When the TP and TA appear at the same time, an announcement is being made.
When only the TA appears, an announcement is not being made.

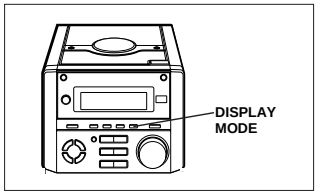
■ Information Provided by RDS

With the XL-60H/XL-70H, you can display two types of RDS service. To show them in the display, press the DISPLAY MODE button.
Each time you press the DISPLAY MODE button, the display will change to show the following information.

PS (Programme Service): Station names commonly known will be displayed. "NO PS" appears if no signal is being received.

PTY (Programme Type): Programme type will be displayed. "NO PTY" appears if no signal is being received.

Station Frequency: Station frequencies.



Descriptions of the PTY (Programme Type) codes, TP (Traffic Programme) and TA (Traffic Announcement)
With the XL-60H/XL-70H, you can search for and receive the following PTY, TP and TA signals.

NEWS: Short accounts of facts, events and publicly expressed views, reportage and actuality.

AFFAIRS: Topical programme expanding or enlarging upon the news, generally in different presentation style or concept, including debate, or analysis.

INFO: Programmes whose purpose is to impart advice in the widest sense.

SPORT: Programme concerned with any aspect of sport.

EDUCATE: Programme intended primarily to educate, of which the formal element is fundamental.

DRAMA: All radio plays and serials.

CULTURE: Programmes concerned with any aspect of national or regional culture, including language, theatre, etc.

SCIENCE: Programmes about the natural sciences and technology.

VARIED: Used for mainly speech-based programmes usually of light-entertainment nature, not covered by other categories. Examples include: quizzes, panel games, personality interviews.

POP M: Commercial music, which would generally be considered to be of current popular appeal, often featuring in current or recent record sales charts.

ROCK M: Contemporary modern music, usually written and performed by young musicians.

EASY M: Current contemporary music considered to be "easy-listening", as opposed to Pop, Rock or Classical, or one of the specialised music styles, Jazz, Folk or Country. Music in this category is often but not always, vocal, and usually of short duration.

(Continued)

LIGHT M: Classical Musical for general, rather than specialist appreciation. Examples of music in this category are instrumental music, and vocal or choral works.

CLASSICS: Performances of major orchestral works, symphonies, chamber music, etc., and including Grand Opera.

OTHER M: Musical styles not fitting into any of the other categories. Particularly used for specialist music of which Rhythm & Blues and Reggae are examples.

WEATHER: Weather reports and forecasts and meteorological information.

FINANCE: Stock Market reports, commerce, trading, etc.

CHILDREN: For programmes targeted at a young audience, primarily for entertainment and interest, rather than where the objective is to educate.

SOCIAL: Programmes about people and things that influence them individually or in groups. Includes: sociology, history, geography, psychology and society.

RELIGION: Any aspect of beliefs and faiths, involving a God or Gods, the nature of existence and ethics.

PHONE IN: Involving members of the public expressing their views either by phone or at a public forum.

TRAVEL: Features and programmes concerned with travel to near and far destinations, package tours and travel ideas and opportunities. Not for use for announcements about problems, delays, or road-works affecting immediate travel where TP/TA should be used.

LEISURE: Programmes concerned with recreational activities in which the listener might participate. Examples include, Gardening, Fishing, Antique collecting, Cooking, Food & Wine, etc.

JAZZ: Polyphonic, syncopated music characterised by improvisation.

COUNTRY: Songs which originate from, or continue the musical tradition of the American Southern States. Characterised by a straightforward melody and narrative story line.

NATION M: Current Popular Music of the Nation or Region in that country's language, as opposed to international 'Pop' which is usually US or UK inspired and in English.

OLDIES: Music from the so-called "golden age" of popular music.

FOLK M: Music which has its roots in the musical culture of a particular nation, usually played on acoustic instruments. The narrative or story may be based on historical events or the people.

DOCUMENT: Programme concerned with factual matters, presented in an investigative style.

TEST: Broadcast when testing emergency broadcast equipment or receivers.

ALARM: Emergency announcement made under exceptional circumstances to give warning of events causing danger of a general nature.

NONE: No programme type (receive only).

TP: Broadcasts which carry traffic announcements.

TA: Traffic announcements are being broadcast at present.

Note:
● When the unit is in the EON stand-by mode and a programme is selected, the unit will display "TI" instead of "TP" or "TA".

TEST MODE

The test mode applied to this microcomputer has three modes, namely ordinary test mode to be used for adjustment or measurement, aging test mode to be used for aging test, and self-diagnosis test mode for self-inspection in case of final product inspection.
The test mode specification prescribes the microcomputer with RDS (RH-IX0026SJZZ) . There are two types of indication examples; large ones for the microcomputer with RDS, and smaller ones for the microcomputer without RDS.

1. Turning on the test mode

To turn on the specific test mode, press the POWER button, holding down the following two buttons in the ordinary stand-by mode (power off state). In this case only the main unit button is valid. Even when the POWER of remote control button is set to on, the test mode is not turned on.

[Ordinary test mode]
1. CD Test Mode (TEST 1)…… Volume/JOG Dial Selector + FF/FWD
2. Tuner Test Mode (TEST 2)…… Volume/JOG Dial Selector + Volume Select
3. Electronic volume Test Mode (TEST 3)…… REW/REV + FF/FWD
4. Timer Test Mode (TEST 4)…… FUNCTION + Volume Select
5. LCD Test Mode (TEST 5)…… FUNCTION + FF/FWD

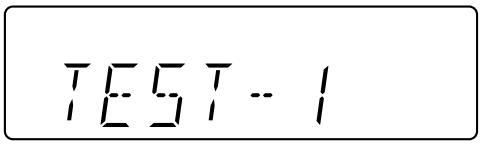
[Self-diagnosis Test Mode]
1. Button input diagnosis test mode (TEST6)…. REW/REV + Volume Select

2. CD Test Mode (TEST 1)

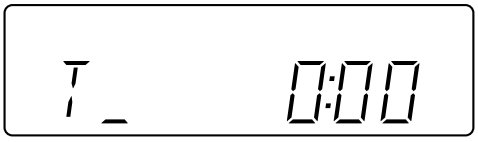
In the CD test mode the operation of each step is enabled even when the LID-SW is off. However, if focus cannot be set in step 3 or any error processing is started, it is impossible to proceed to the next step. When the error processing is started, operations other than termination of test mode by pressing the POWER button or return to the step 1 by pressing the STOP button are inhibited.

1. Step 1 Mode

When the CD test mode is turned on, the following indication lights, the processing (until turning-off of CD STB terminal of CD initialization operation flow) is executed, and the next button input is waited.



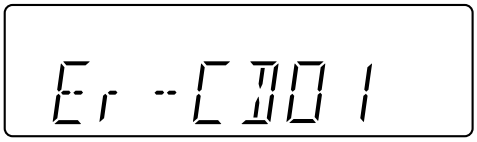
After lighting for one second



If the following operation buttons are pressed in this state, the operation is performed as follows.

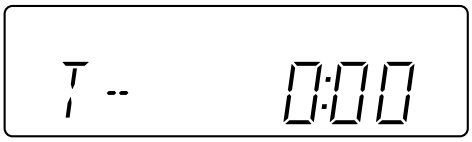
"POWER" ..... The test mode is turned off, the power is turned off, and the ordinary standby mode is set.
"FF/FWD" ..... After the pickup returns once to the innermost periphery, it slides toward the outer periphery while this button is held down.
"REW/REV" ..... After the pickup returns once to the innermost periphery, it slides toward the inner periphery while this button is pressed. However, if PU-IN is on, input is invalid.
"PLAY" ..... Shift to step 2
"STOP" ..... Invalid
"REC PAUSE" ..... Shift to step 5

* In case of initialization the pickup is moved toward the inner periphery. Any buttons other than "POWER" button are not accepted until the shift of pickup to the inner periphery is completed at this time. If PU-IN SW ON cannot be detected within 10 seconds, the slide motor is stopped, and the following error indication appears. Press the POWER button to end the test mode, or press the STOP button to return to step 1. Any other operations are inhibited.



2. Step 2 Mode

When the "PLAY" button is pressed in this mode, the laser lighting command LDON (8400) is sent, and the laser is turned on. Other operations are not performed.

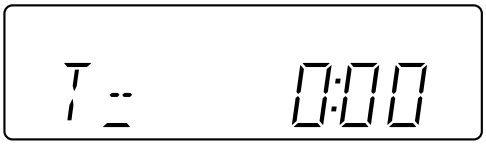


If the following buttons are pressed in this state, the operation is performed as follows.

"POWER" ..... The test mode is turned off, the power is turned off, and the ordinary standby mode is set.
"FF/FWD" ..... The pickup slides toward the outer periphery while this button is held down.
"REW/REV" ..... The pickup slides toward the inner periphery while this button is held down. However, if PU-IN is on, input is invalid.
"PLAY" ..... Shift to step 3
"STOP" ..... Return to step 1
"REC PAUSE" ..... Shift to step 5

3. Step 3 Mode

The laser is kept lighting. The processing (until turning-on of CLV servo of CD initialization operation flow) is executed, and the next button input is waited. (The focus servo is turned on, and focus search is performed.)
The focus search is repeated until the focus is set.

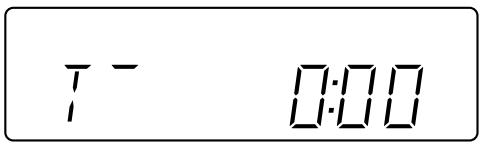


When the following operation buttons are pressed in this state, the operation is executed as follows.

"POWER" ..... The test mode is turned off, the power is turned off, and the ordinary standby mode is set.
"FF/FWD" ..... The pickup slides toward the outer periphery while this button is held down.
"REW/REV" ..... The pickup slides toward the inner periphery while this button is held down. However, if PU-IN is on, input is invalid.
"PLAY" ..... If the focus has been set, shift to step 4 is executed. If the focus has not been set, acceptance is inhibited.
"STOP" ..... Return to step 1
"REC PAUSE" ..... Shift to step 5
*If the focus is disturbed after it has been set, the process returns to step 1.

4. Step 4 Mode

The CLV servo ON command (8600) sending operation is performed, and the next button input is waited. (The disc is rotated to perform CLV locking.)



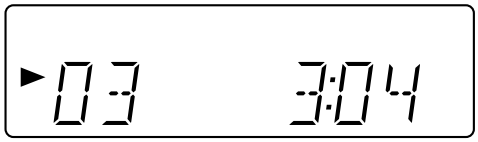
The time display indicates always "0:00".

When the following buttons are pressed in this state, the operation is executed as follows.

"POWER" ..... The test mode is turned off, the power is turned off, and the ordinary standby mode is set.
"FF/FWD" ..... The pickup slides toward the outer periphery while this button is held down.
"REW/REV" ..... The pickup slides toward the inner periphery while this button is held down. However, if PU-IN is on, input is invalid.
"PLAY" ..... Shift to step 5
"STOP" ..... Return to step 1
"REC PAUSE" ..... Shift to step 5
*If the focus is disturbed, the process returns to step 1.

5. Step 5 Mode

The CD initialization operation flow is executed to the end, the mute is set to off, and playback is started. Even when the playback reaches the outermost periphery of disc, the operation does not stop. The LCD display indicates the playback past time as in case of ordinary CD playback.



When the following operation buttons are pressed in this sate, the operation is executed as follows.

"POWER" ..... The test mode is turned off, the power is turned off, and the ordinary standby mode is set.
"FF/FWD" ..... The pickup slides toward the outer periphery while this button is held down.
"REW/REV" ..... The pickup slides toward the inner periphery while this button is held down. However, if PU-IN is on, input is invalid.
"PLAY" ..... Invalid
"STOP" ..... Return to step 1
*If the focus is disturbed, the process returns to step 1.

Other cautions
• TOC IL is not executed in the test mode.
• As for button operations other than those shown above, only the sound volume operation (with JOG) is accepted.

3. Tuner Test Mode (TEST 2)

1. Outline of tuner (radio) test mode

The tuner test mode is intended to store the adjustment and measurement frequencies in the preset memory CH without frequency setting by adjusting personnel when the tuner section is adjusted in the production line.

2. Details of tuner test mode

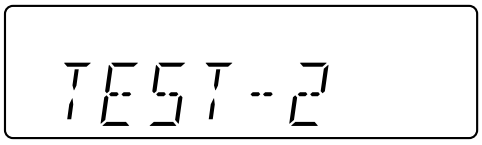
When the power is turned on by using the "POWER" button while the "Volume/JOG Dial Selector" and "Volume Select" buttons are held down in POWER OFF state, the frequency for adjustment and measurement of destination specified by the AREA terminal is preset and stored in the preset memory CH. However, Ordinary 1 and Ordinary 2 are set to the designation (destination selected by SPAN switching operation) set when the test mode is set. (As for frequencies to be preset and stored for each destination, refer to item 3.)

The tuner test mode is started from preset No.1.

The operations of test mode are identical with the ordinary operations of TUNER function. However, FUNCTION switching is invalid.

Since it is necessary to discard the content of preset memory when the tuner test mode is ended, "0000" or "1111" bits are written in the memory to be checked in case of memory check (in case of initial setting) so that memory abnormality is detected in case of initial setting so as to ensure memory initialization.

When the tuner test mode is turned on, the following indication lights for one second.



• The TUNER TEST2 mode is set as a result of Volume Select + POWER. -> IF AC is set to OFF in the TEST2 mode, the initial state is restored.

↓

When POWER is set to OFF, the memory of TEST2 mode is protected.
When the power is turned on again, the ordinary operation is enabled while the data is stored in the memory (besides TUNER).

↓

If AC OFF state is maintained in this state for about 1/2 day, start is executed in the initial state.

• To clear the whole memory, insert the AC cord, holding down MEMORY + PLAY.

3. Preset frequencies for various destinations (random preset memory)

CH	BAND	Europe 2, 4
1		FM 87.50 MHz
2		FM108.00 MHz
3	FM	FM 98.00 MHz
4	STEREO	FM 90.00 MHz
5		FM106.00 MHz

CH	BAND	Europe 2, 4
6		AM 522 kHz
7		AM1620 kHz
8	AM	AM 990 kHz
9		AM 603 kHz
10		AM1404 kHz
11-15	LW	

CH	BAND	Europe 2, 4
16-25		
26		FM106.00 MHz
27		FM 90.00 MHz
28	FM	FM 98.00 MHz
29	MONO	FM108.00 MHz
30		FM 87.50 MHz

• The hatched sections of the table are not stored in memory.

4. ASPM TEST Mode

When the ASPM button is pressed, the test mode is set. It starts up at FM 106.50 MHz. (ST mode)

Data of 27 CH of 04 to 30 CH are all stored at FM 87.50 MHz (ST).
01 to 03CH are kept empty (If data of 3 CH are stored, max. 30 CH is filled.)
When the ASPM button is operated in the TEST mode 3, the preset data is cleared (overwrite).

A) Operation with ASPM button
Press the "ASPM" button or hold it down. (Any button other than ASPM button cancels the ASPM test mode.)

When the ASPM button is pressed once in the TUNER TEST mode, the indication FM 106.50 MHz (ST) appears, and data of 04 to 30 CH are stored at 87.50 MHz (ST). When the ASPM button is operated again, the ASPM test operation mode is set.

FM 105.00 MHz (ST) is indicated, and scan is started.
(Start from 105.00 MHz)

↓

During scanning the frequency is indicated.

↓

End at FM 108.00 MHz (ST)

↓

Only the number of preset and stored stations (number of CHs: max. 3 stations) is indicated for one second in the ASPM test mode. When two stations are stored, "_2 MEMORY" is indicated (lighted)for one second.
("02 MEMORY" indication is not given.)

↓

"END" is not indicated

→ In case of "_0 MEMORY" the process ends, and the FM 106.50 MHz (ST) state is resumed.

↓

Not in zero-memory state

(An example)

01CH indication (for one second) — FM P-01

↓

Frequency indication (for one second) — FM 105.50MHz(ST)

↓

02CH indication (for one second) — FM P-02

↓

Frequency indication (for one second) — FM 106.50MHz(ST)

↓

03CH indication (for one second) — FM P-03

↓

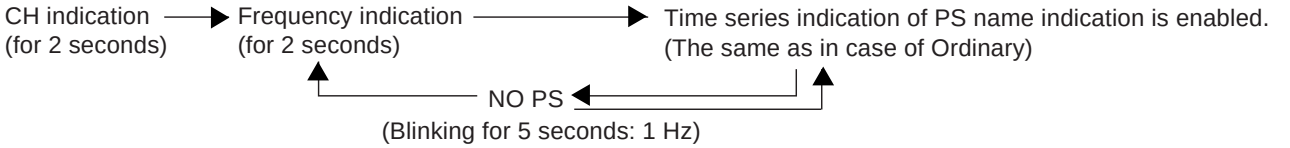
Frequency indication (for one second) — FM 107.50MHz(ST)

Confirmation of content of memory
(Examples of concrete indication)

↓

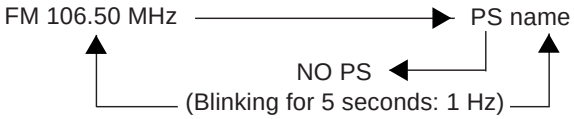
After indication of continuous time series for one second the indication of FM 106.50 MHz (ST) is restored.
(The preset button is not pressed. The time series is indicated automatically, and the content of memory is indicated.)
* PS name is not indicated (while the content of memory is checked)
* If only 1 CH data is stored, FM P-01 -> FM 106.00 MHz -> FM 106.50 MHz (ST)
(An example) (1 sec) (1 sec) (ST) End indication

* When the "PRESET UP" button or "PRESET DOWN" button is pressed after completion, the following indication appears.



Note: If PS is fixed after the frequency indication is resumed, the PS name indication is restored.

* If signal exists at 106.50 MHz, the following indication appears.



When the PS data is given in case of NO PS indication, the PS name indication is restored.

Note: If PS is fixed after the frequency indication is resumed, the PS name indication is restored.

In case of memory storage with ASPM, for example, if RDS station 107.50 MHz has the PI code (the same as that of RDS station 105.50 MHz) and VSM is greater than 105.50 MHz (PR-01), data is overwritten on 105.5 MHz which is contained in "PR-01". (Frequency is changed to 107.50 MHz.)
If VSM is equal, previously stored 105.50 MHz remains.

When RDS station is stored in the test mode, the 2-second blinking of preset No. is not performed so as to save the production line test time. ("RDS" lighting is performed.)

Note: RDS operation is performed in FM MONO state. However, in case of ASPM, ASPM scan is performed after BAND is changed from FM MONO to FM STEREO.

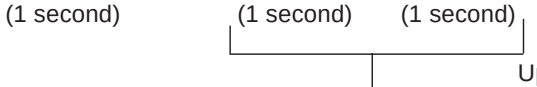
Note: When the ▶II (PLAY) button is pressed in TEST 2 mode, it is possible to check the sate of IF count. However, this function is for designer. It is not necessary for other sections.

B) Cautions concerning the ASPM test mode

a) Cancel: When the "ASPM" button is pressed again during operation after it was first pressed in the test mode, the ASPM test mode is canceled (interrupted), and the initial state FM 106.50 MHz (ST) indication is restored.
(To check the data which was preset and stored until interruption, use the preset UP/DOWN button. (JOG UP/DOWN is also available after JOG mode button operation.)
wing indication appears.

b) The ASPM test mode is started in FM stereo state (FM 106.50 MHz ST). If any button other than ASPM button is pressed even only once after it is started, it becomes invalid, and the ASPM test mode becomes inoperable.
Invalid: The Ordinary mode is set while 4 to 30CH data remain in memory (or 1 to 30 CH MAX data remain in memory).

The "ASPM" button can be repeatedly operated until 01CH to 03CH is filled (up to 3 stations in memory).
The number of stored stations -> Channel No. -> Frequency -> FM 106.50 MHz (ST) is indicated.



Up to 3 stations (1 to 3CH) can be indicated. This indication is given only in the ASPM test mode. In other mode (not in ASPM test mode) the number of stored stations -> END is indicated

c) Broadcast (without PI code) which is not RDS is not preset and stored in memory.
When the ASPM mode is set, the "MEMORY/SET" button cannot be operated (the test mode is canceled).
Operation is possible after ASPM test mode operation.

d) Scan frequency: 105.00 MHz -> 108.00 MHz
Data are stored in memory so that the PI code is not duplicated (by seeing the PI code and VSM (S meter value). When the PI code is duplicated, both VSM (S meter value) are compared. The greater one is stored in memory but the smaller one is discarded.
For the stations having the same PI code, only one station having the highest electric field intensity is stored, and the memory is refilled. The channels which can be preset in the ASPM test mode are 01 to 03CH. If 3 stations are stored, 30 CH are filled.
For the stations having the same electric field intensity, the former (preceding station) is stored.

e) Signal of already stored same frequency is not stored. (The previously stored data is kept.)

f) The order of preset memory is 01CH -> 02CH -> 03CH.

g) When 01 to 03CH were all used, scan is aborted at the frequency at which filling occurred, and the following indication appears.

Number of stored stations -> Indication of stored channel -> Indication of frequency -> Return to initial FM 106.50 MHz (ST)
(1 second) (1 second) (1 second)

In this period up to 3 stations are continuously indicated (1 to 3 CH).

h) If even one station could not be preset and stored in the APMS mode, "_0MEMORY" is indicated after scanning, and then FM 106.50 MHz (ST) indication is restored. (The first digit is space.)
("_0MEMORY" is indicated in the test mode.)

i) When the "ASPM" button is pressed after three stations are stored (after full-memory of 30 stations), "ASPM" blinks for 2 seconds, and then FM 106.50 MHz (ST) indication is restored without ASPM scanning. (RDS automatic lighting)
(In case of ASPM button operation in full memory state)

j) After completion of specific operation FM 106.50 MHz (ST) indication is restored.

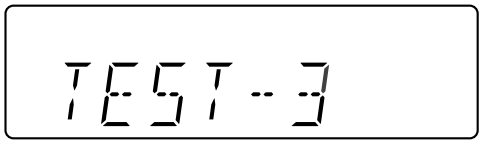
k) Test mode
Use of only the function button is inhibited.

l) The first channel to be called (when data is stored in the ASPM mode) is 01CH.

m) After start-up in the ASPM test mode the ASPM key is valid even when it is pressed many times. The test mode is kept.
If three stations are stored (1 to 3CH), full-memory state occurs.
If the ASPM button is pressed after occurrence of full-memory state, the same operation as that described in item i) is performed.

4. Electronic volume Test Mode (TEST 3)

When the test mode is set, the following indication lights for one second.



When this mode is set, BASS/TREBLE is set to 0 (0 dB) and SURROUND mode is set to off, and start-up function is set to CD when volume is -14 dB (STEP 17). The button operations in the test mode are the same as those of ordinary operation excepting sound volume UP/DOWN.

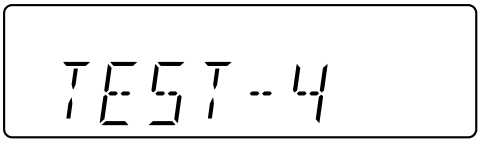
(1) The indication is the same as that of ordinary operation excepting test mode setting.
(2) The sound volume control with the sound volume UP/DOWN button is only the following 3 steps unlike the ordinary state.

Volume- ∞ (STEP 0) <-> Volume-14 dB (STEP 23) <-> Volume-0 (STEP 30)

(3) BASS/TREBLE and SURROUND are switched when button operation is performed.

5. Timer test Mode (TEST 4)

When the test mode is set, the following indication lights for one second.



The current time and timer time are set in the following procedure to perform the timer playback.

1.Set the current time to 1:00, set the timer to ON time 1:02, set the function to Tape, and set volume STEP 8. One minute is counted as one second, and the timer playback operation is performed. The fade-in (when playback is started) is executed at a rate of one step for 0.5 sec. After completion of fade-in the fade-out is executed at a rate of one step for 0.5 sec (WAIT 1 sec inserted). After completion of fade-out the power is turned off (after WAIT 1 sec), and the mode is changed to the standby mode.
The indication during operation is the same as that of ordinary timer operation.

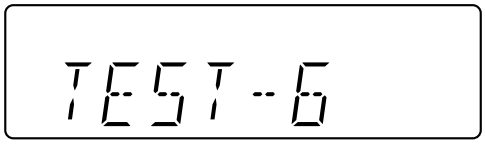
6. LCD Test Mode (TEST 5)

When the LCD test mode is set, all the LCD segments are lighted. After that the indication is changed as follows according to the "PLAY" button input.

→ Lighting of all segments → Lighting of odd segments → Lighting of even segments →

7. Key input diagnosis Test Mode (TEST 6)

When the test mode is set, the following indication appears.



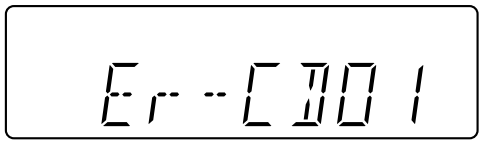
This test mode is intended to check whether all the main unit buttons can be detected. Accordingly, in this test mode checking as to whether the "POWER" button was pressed after all the buttons shown below were pressed is performed. If the result is OK, OK is indicated. Even any one of keys was not pressed, an error is indicated. In case of OK termination or error termination exit from this mode occurs when the "POWER" button is pressed next time, and the standby mode is set.

1. In case of "FUNCTION" + "RDS PTY-TP"
   Since SURROUND and RDS are provided, the following 16 buttons are detected as all buttons.
   PLAY, JOG MODE, BAND, BASS/TREBLE, FUNCTION, MEMORY/SET, REC PAUSE, REW, FF, STOP, CLOCK/TIMER/ SLEEP, PTY-TI, EON, APMS, DISPLAY, SURROUND

The OK/NG indication of test result is as follows.

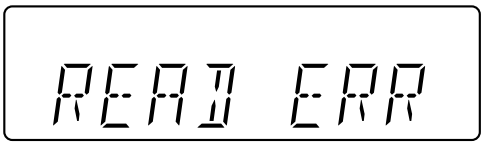
ERROR LIST

PU-IN SW detection error



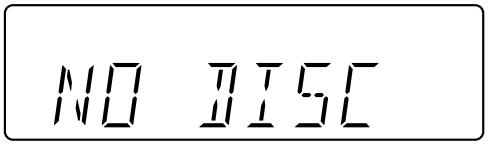
Error content ..... The detection SW cannot detect ON after a fixed period of time even if the microcomputer controls the CD pickup to return to the innermost position.
Probable cause ..... Defective or poorly connected PU-IN SW or slide motor.
Action ..... Solve the problem and turn on the power again.

CD read error



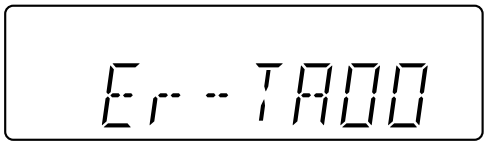
Error content ..... Disc data cannot be read properly or even if it can be read, the disc is not a playable one.
Probable cause ..... The disc is loaded upside down, not CD-DA, scratches, stains, etc.
Action ..... Open the CD lid, then reload the disc correctly. Remove the scratches or stains on the disc.

NO DISC



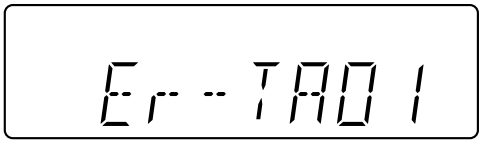
Error content ..... Focusing is impossible.
Probable cause ..... The disc is loaded upside down, not CD-DA, scratches, stains, etc.
Action ..... Open the CD lid, then reload the disc correctly. Remove the scratches or stains on the disc.

Tape mechanism error 1



Error content ..... The detection SW "CAM-SW" cannot detect ON (mechanism in operation) even if the motor and solenoid are controlled to play back, fast forward, rewind, or record the tape.
Probable cause ..... Mechanism is in operation when this message appears: Defective or poorly connected CAM-SW. Mechanism stops: Defective or poorly connected motor or solenoid.
Action ..... Solve the problem and turn on the power again.

Tape mechanism error 2



Error content ..... Initialization cannot be completed when the microcomputer controls the motor and solenoid to initialize the tape mechanism (to set the mechanism to the stop mode). The detection SW "CAM-SW" cannot detect OFF While the mechanism is in operation.
Probable cause ..... Mechanism is in operation when this message appears: Defective or poorly connected CAM-SW. Mechanism stops: Defective or poorly connected motor or solenoid.
Action ..... Solve the problem and turn on the power again.

NOTES ON SCHEMATIC DIAGRAM

- Resistor:
  To differentiate the units of resistors, such symbol as K and M are used: the symbol K means 1000 ohm and the symbol M means 1000 kohm and the resistor without any symbol is ohm-type resistor. Besides, the one with "Fusible" is a fuse type.
- Capacitor:
  To indicate the unit of capacitor, a symbol P is used: this symbol P means micro-micro-farad and the unit of the capacitor without such a symbol is microfarad. As to electrolytic capacitor, the expression "capacitance/withstand voltage" is used.
  (CH), (TH), (RH), (UJ): Temperature compensation
  (ML): Mylar type
  (P.P.): Polypropylene type
- Schematic diagram and Wiring Side of P.W.Board for this model are subject to change for improvement without prior notice.
- The indicated voltage in each section is the one measured by Digital Multimeter between such a section and the chassis with no signal given.
  1. In the tuner section,
     ( ) indicates AM
     < > indicates FM stereo
  2. In the main section, a tape is being played back.
  3. In the deck section, a tape is being played back.
     ( ) indicates the record state.
  4. In the power section, a tape is being played back.
  5. In the CD section, the CD is stopped.
- Parts marked with " ⚠ " (⊏ ☰ ☰ ☰ ⊐) are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

REF. NO	DESCRIPTION	POSITION
NSW801	PICKUP IN	ON—OFF
SW700	JOG	ON—OFF
SW709	ON/STAND-BY	ON—OFF
SW710	CLOCK/TIMER/SLEEP	ON—OFF
SW711	TUNING UP	ON—OFF
SW712	PLAY/CD PAUSE	ON—OFF
SW713	VOLUME SELECT	ON—OFF
SW714	DISPLAY MODE	ON—OFF
SW715	ASPM	ON—OFF
SW716	EON	ON—OFF
SW717	PTY. TI	ON—OFF
SW718	SURROUND	ON—OFF

REF. NO	DESCRIPTION	POSITION
SW721	MEMORY/SET	ON—OFF
SW722	BASS/TREBLE	ON—OFF
SW723	BAND	ON—OFF
SW724	REC. PAUSE	ON—OFF
SW725	STOP/CLEAR	ON—OFF
SW726	TUNING DOWN	ON—OFF
SW727	FUNCTION	ON—OFF
SW728	VOLUME JOG	ON—OFF
SW730	CD LID OPEN/CLOSE	ON—OFF
SW802	CD LID	ON—OFF
SW901	FOOL PROOF	ON—OFF
SW902	CAM	ON—OFF

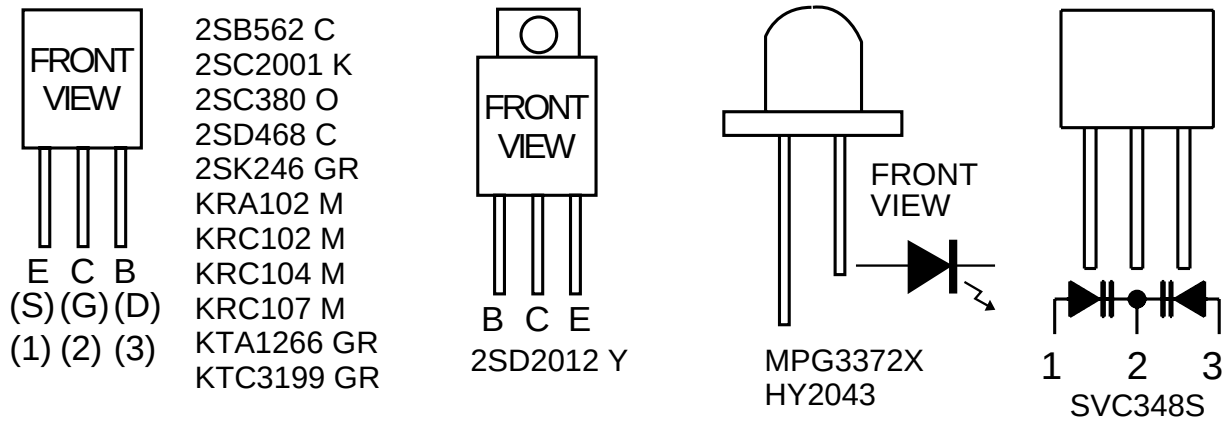


Figure 21 TYPES OF TRANSISTOR AND LED

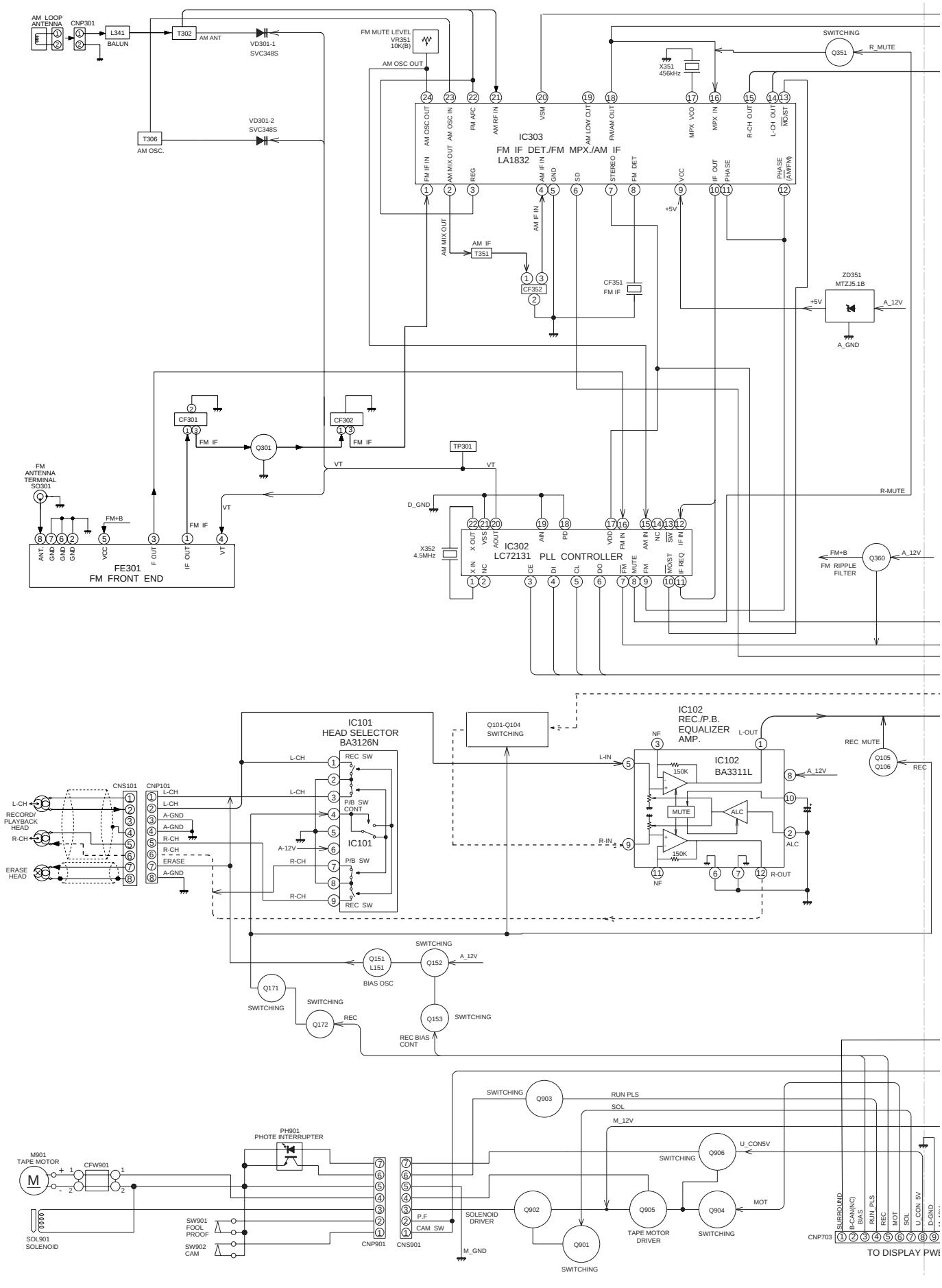


Figure 22 BLOCK DIAGRAM (1/4)

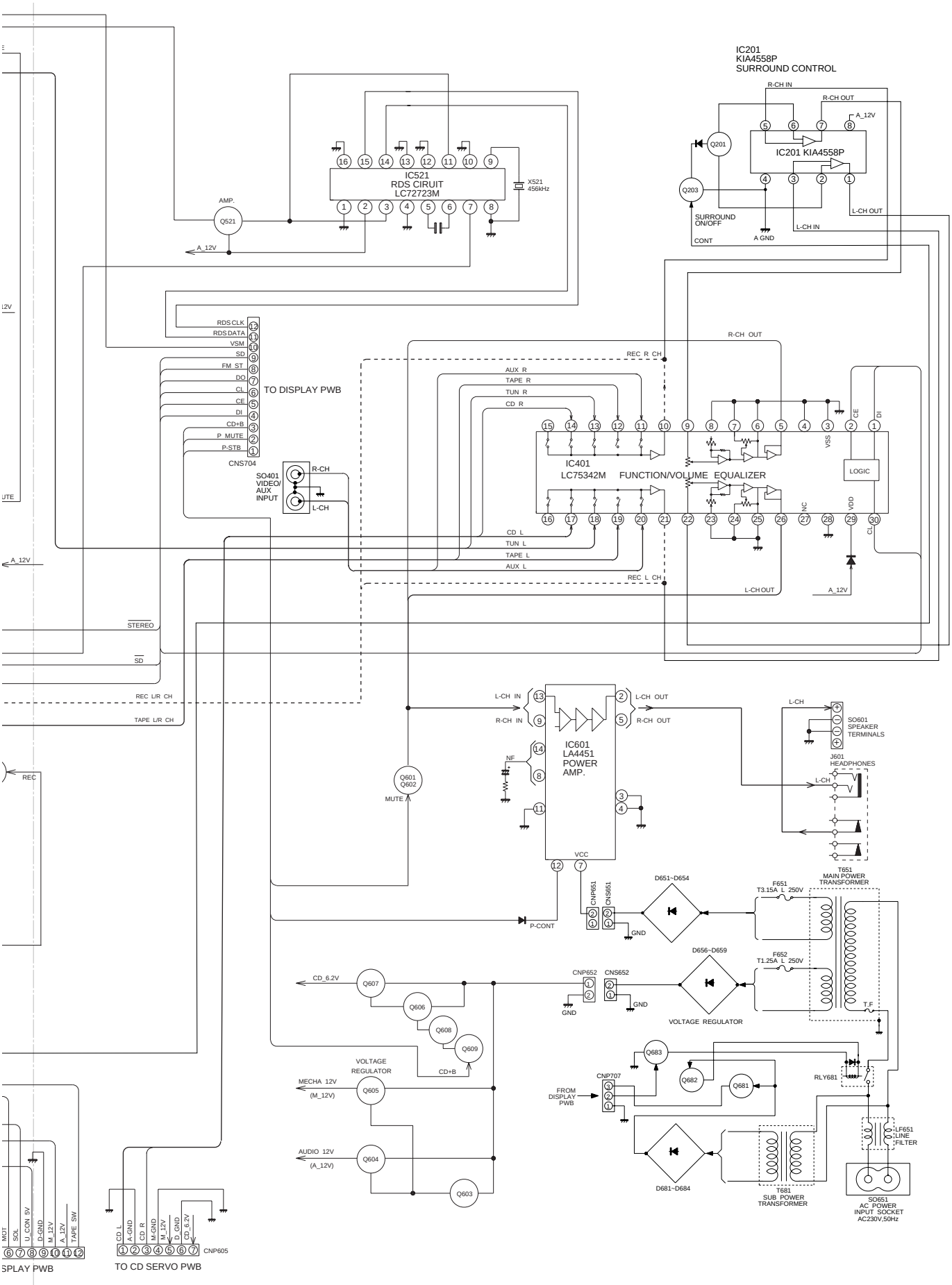


Figure 23 BLOCK DIAGRAM (2/4)

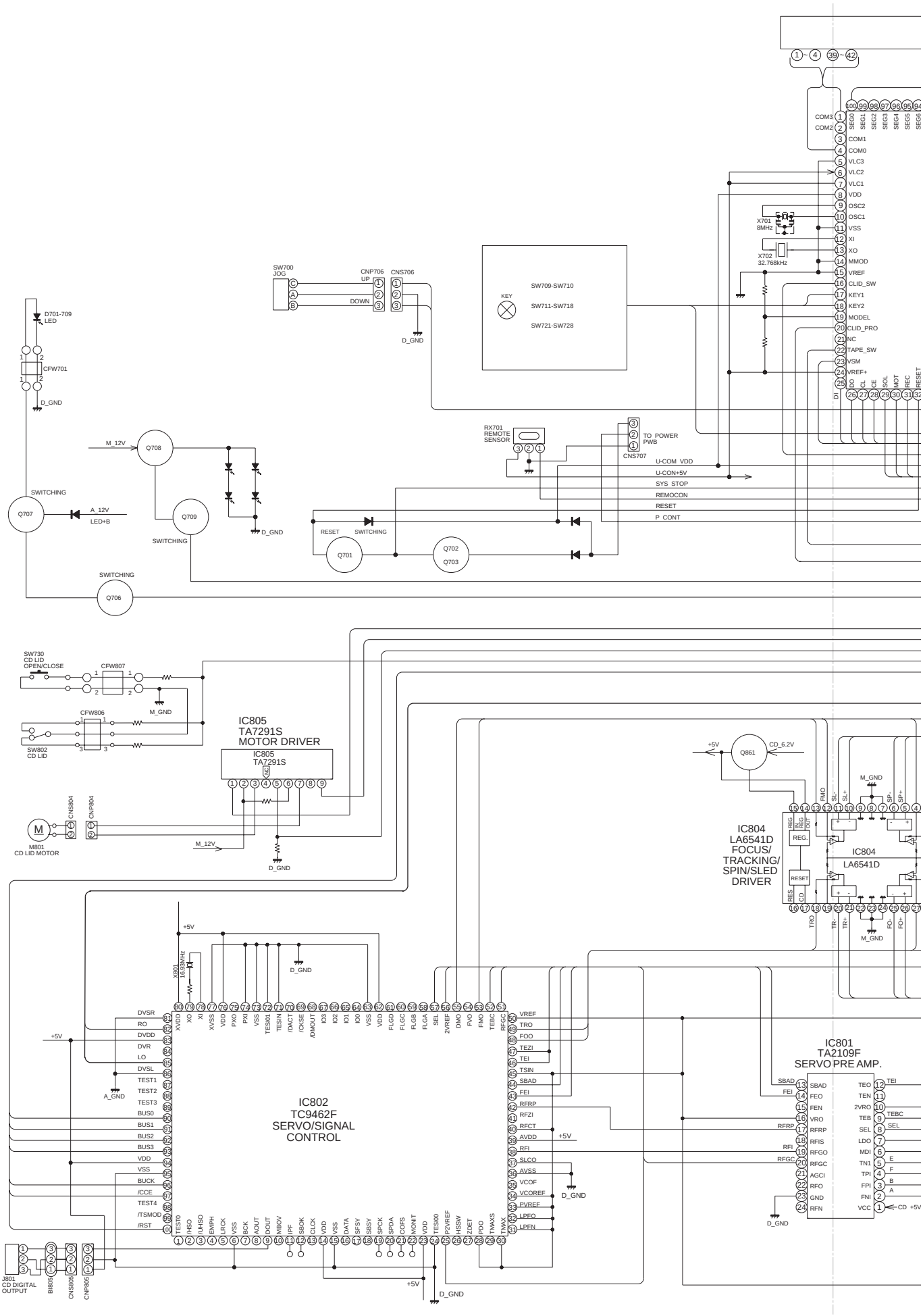


Figure 24 BLOCK DIAGRAM (3/4)

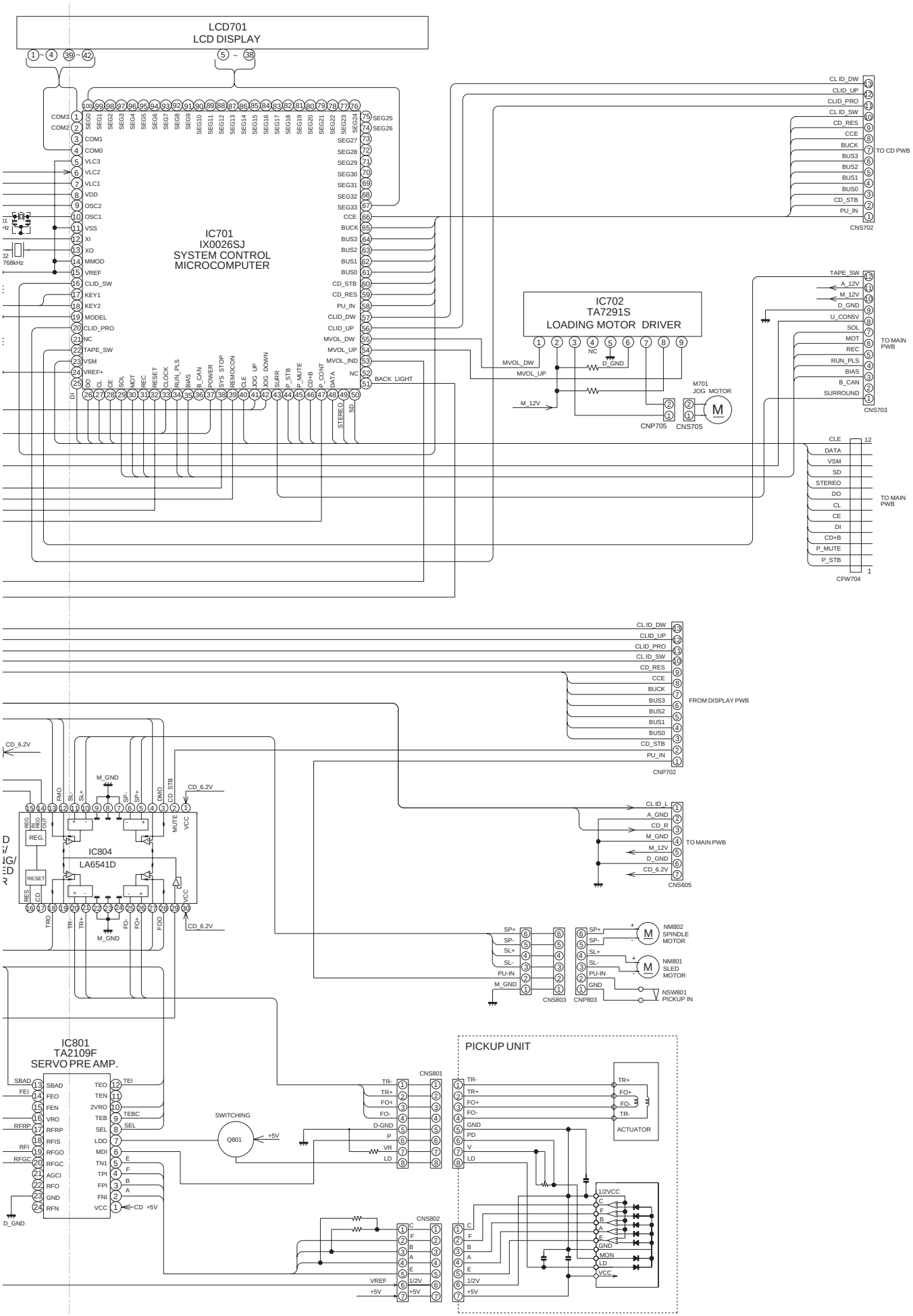


Figure 25 BLOCK DIAGRAM (4/4)

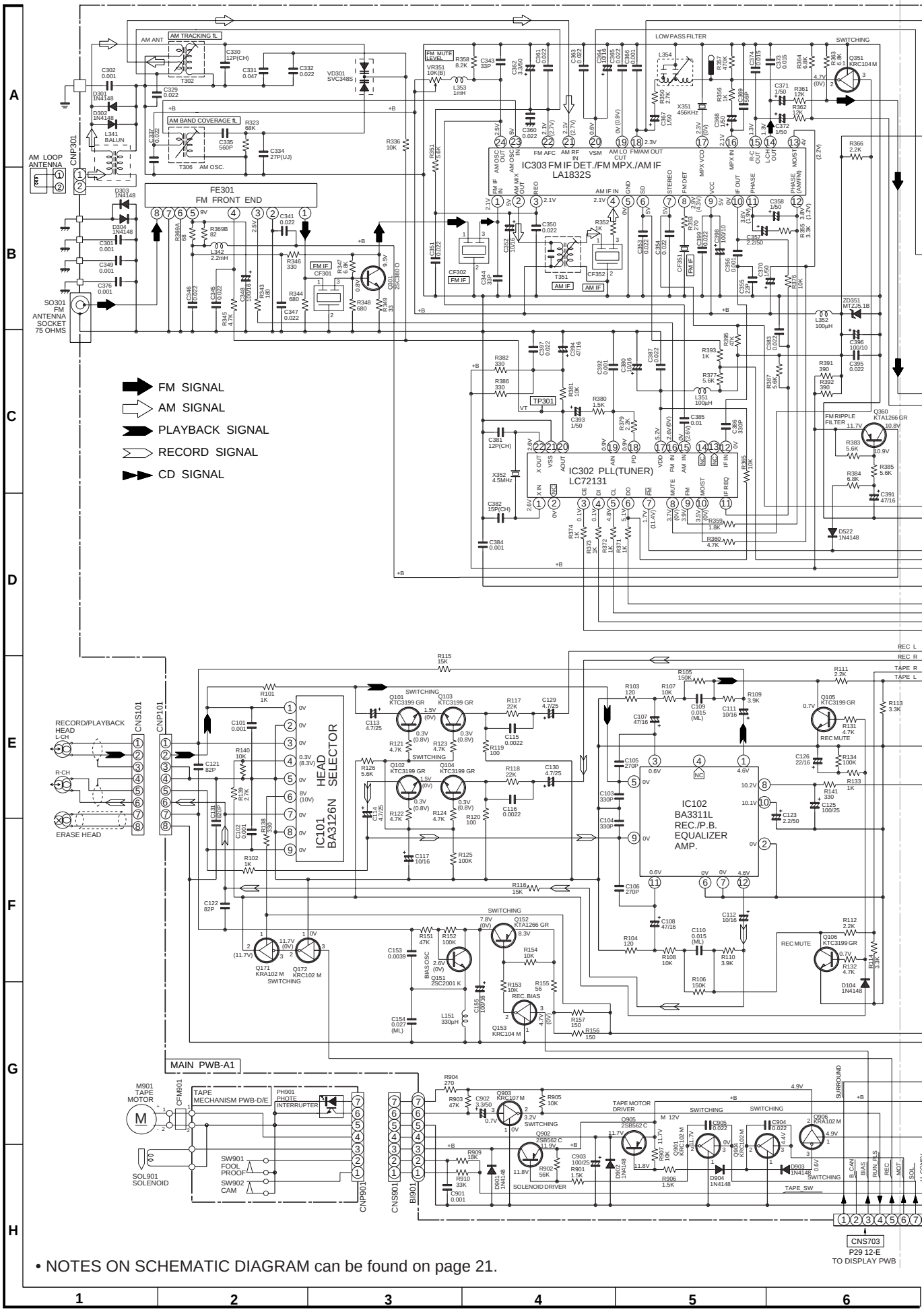
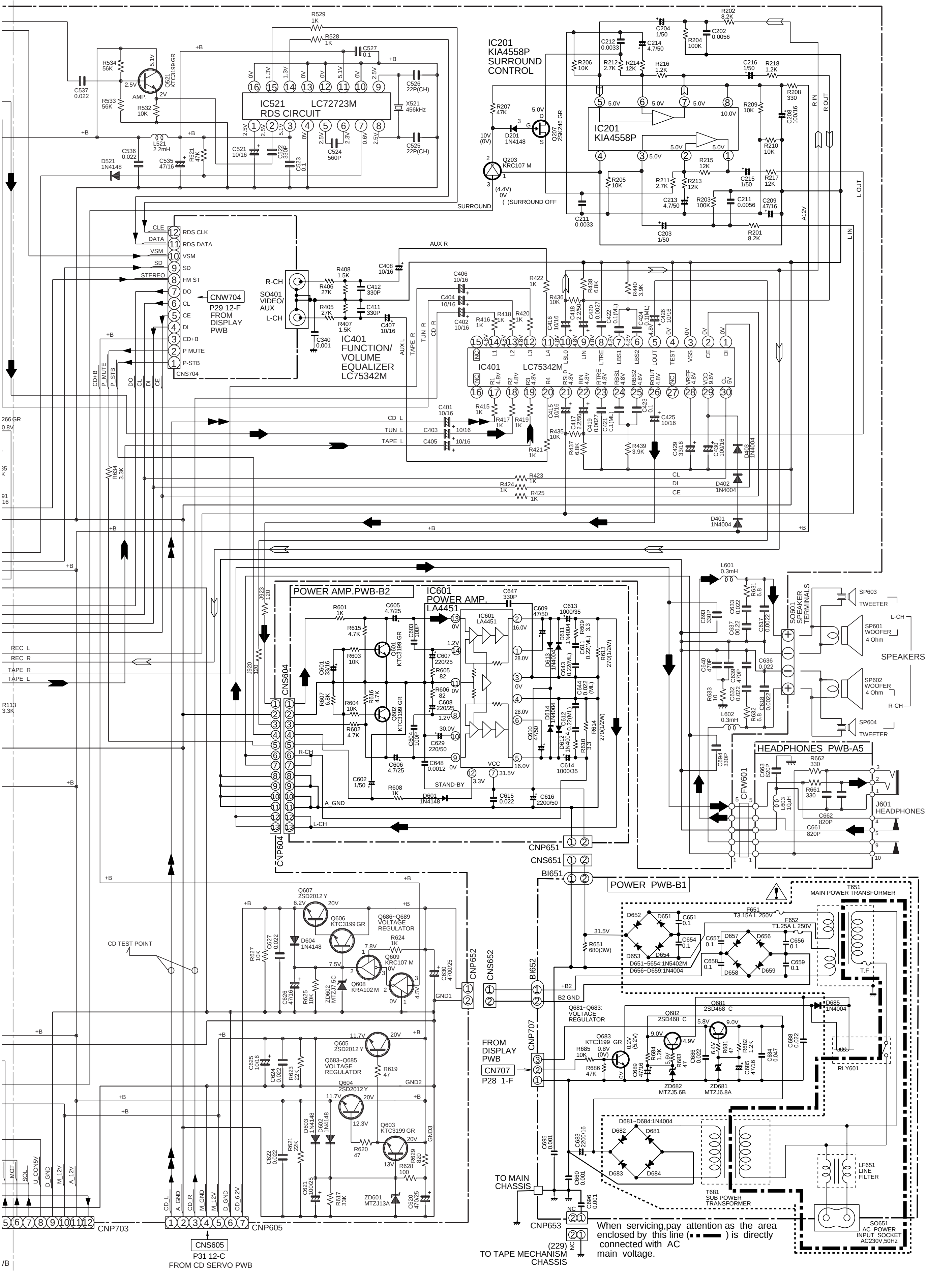


Figure 26 SCHEMATIC DIAGRAM (1/6)



7	8	9	10	11	12

Figure 27 SCHEMATIC DIAGRAM (2/6)

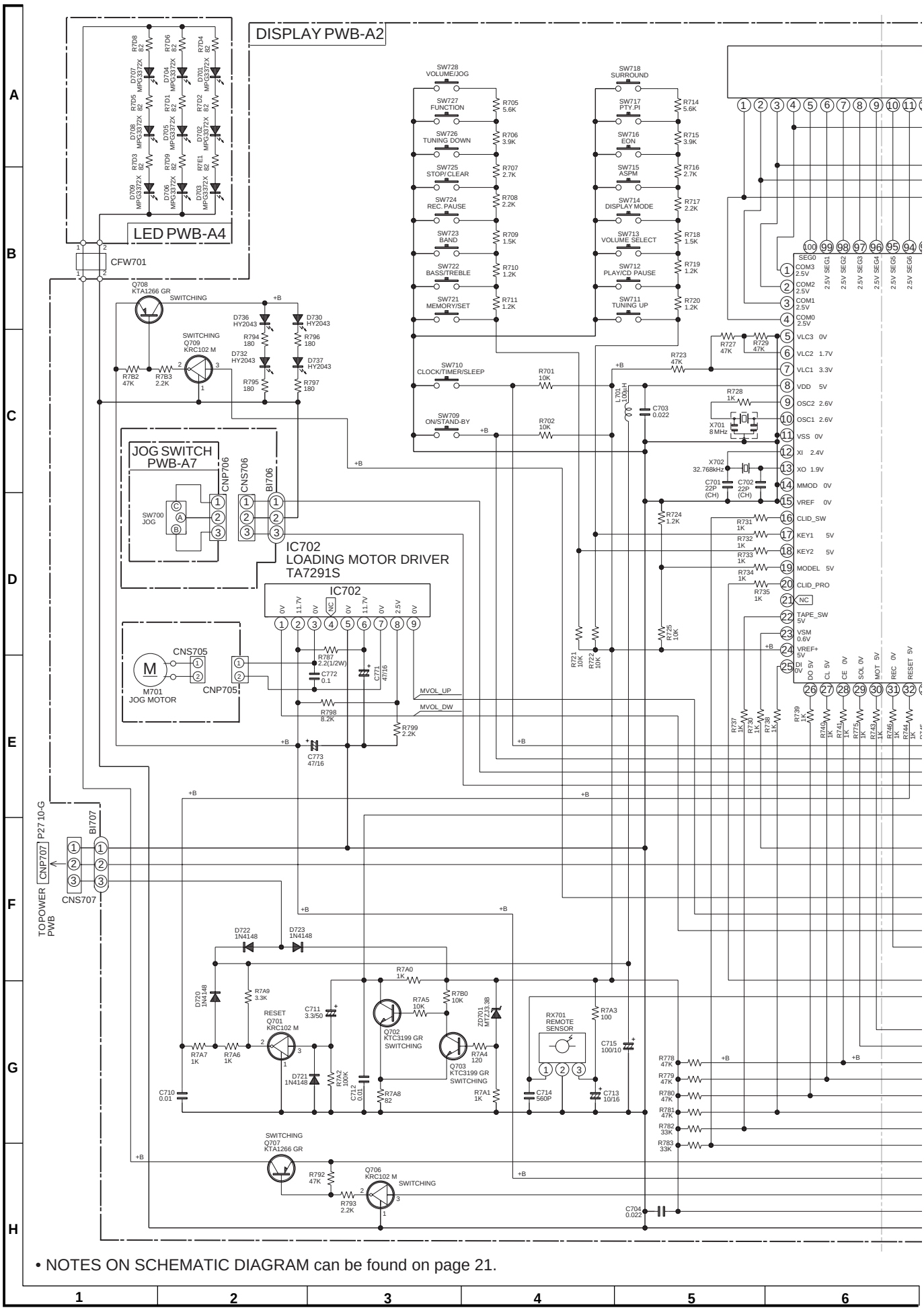
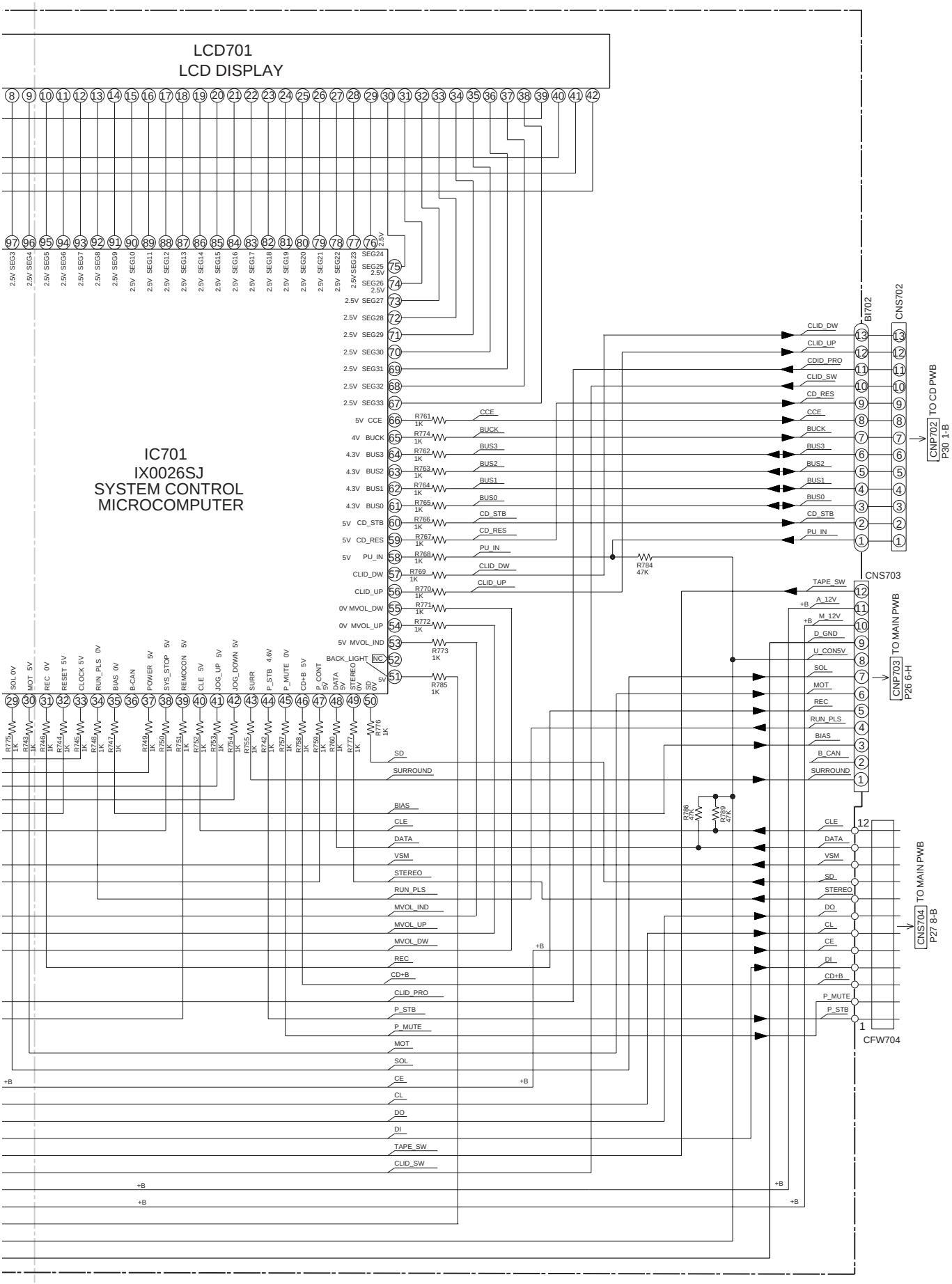
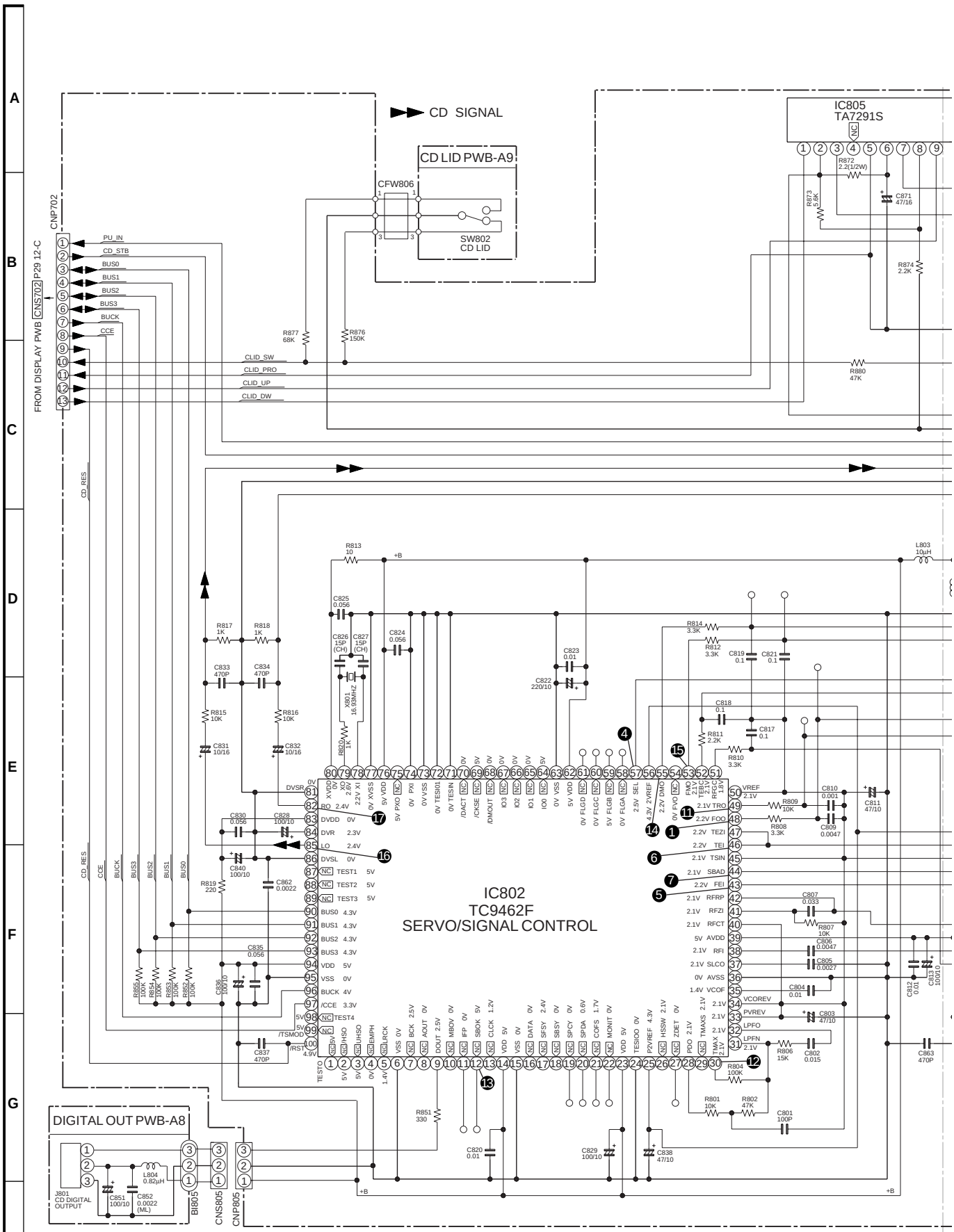


Figure 28 SCHEMATIC DIAGRAM (3/6)



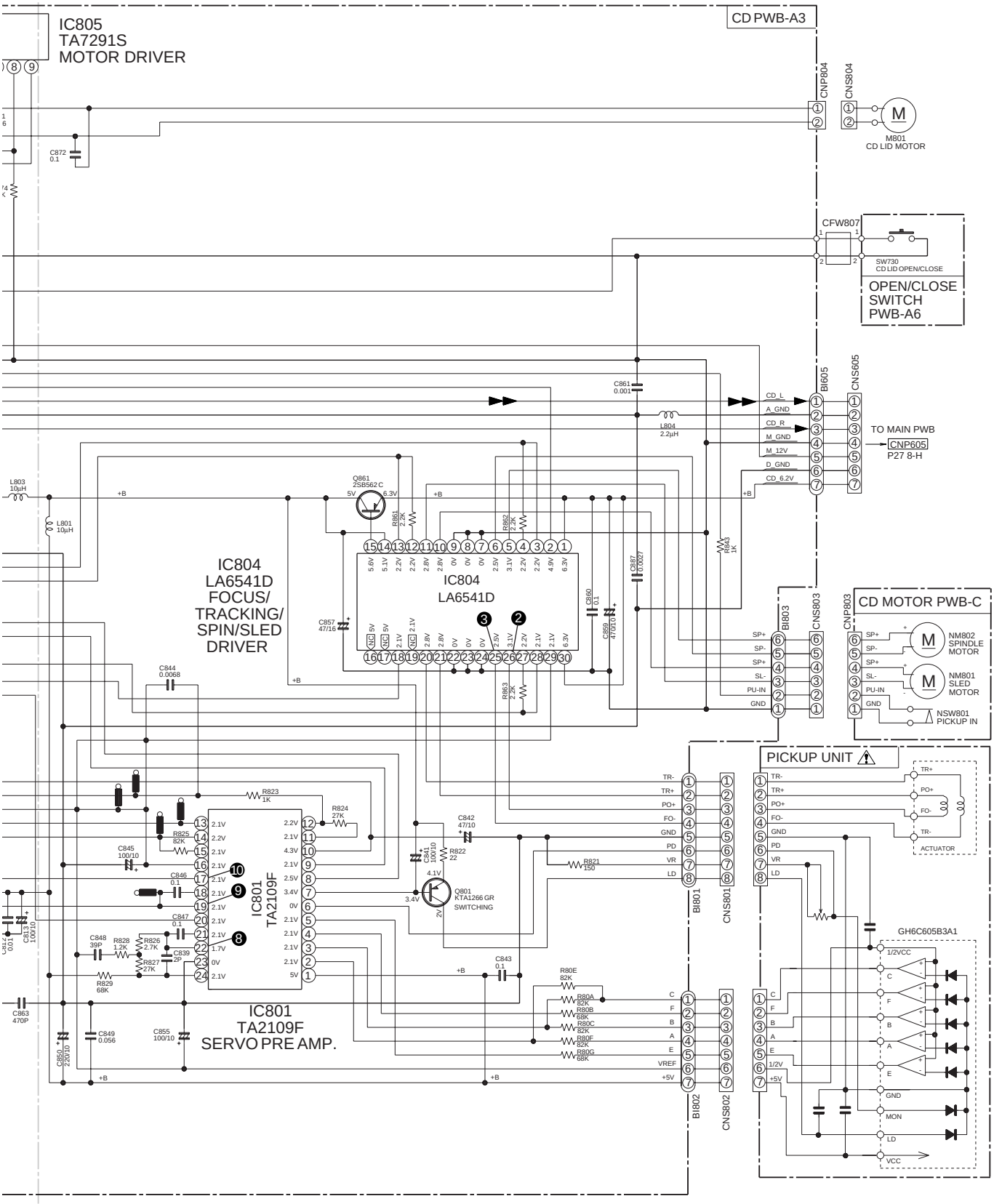
7	8	9	10	11	12

Figure 29 SCHEMATIC DIAGRAM (4/6)



- NOTES ON SCHEMATIC DIAGRAM can be found on page 21.
- The numbers 1 to 17 are waveform numbers shown in page 36.

Figure 30 SCHEMATIC DIAGRAM (5/6)



7	8	9	10	11	12

Figure 31 SCHEMATIC DIAGRAM (6/6)

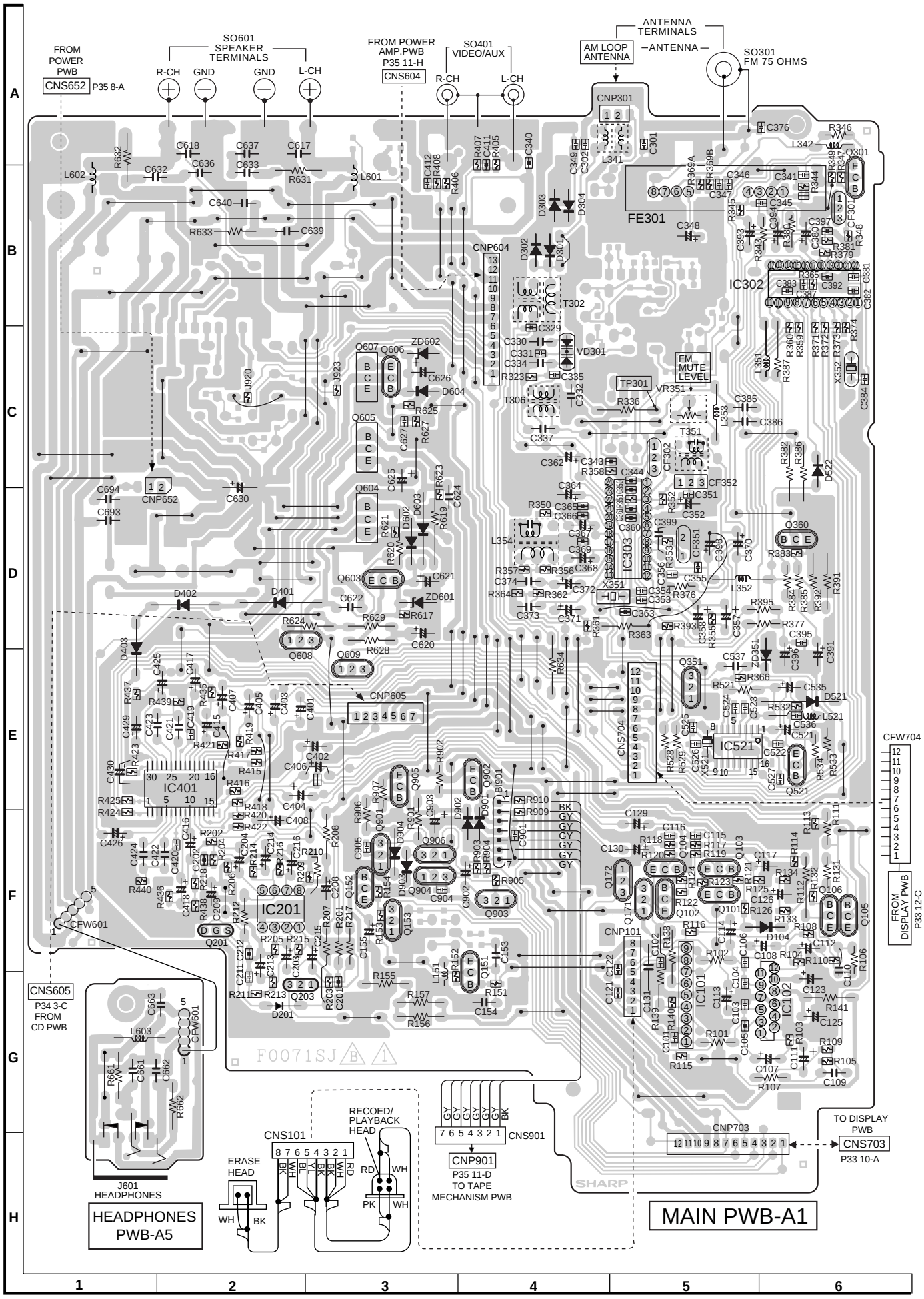
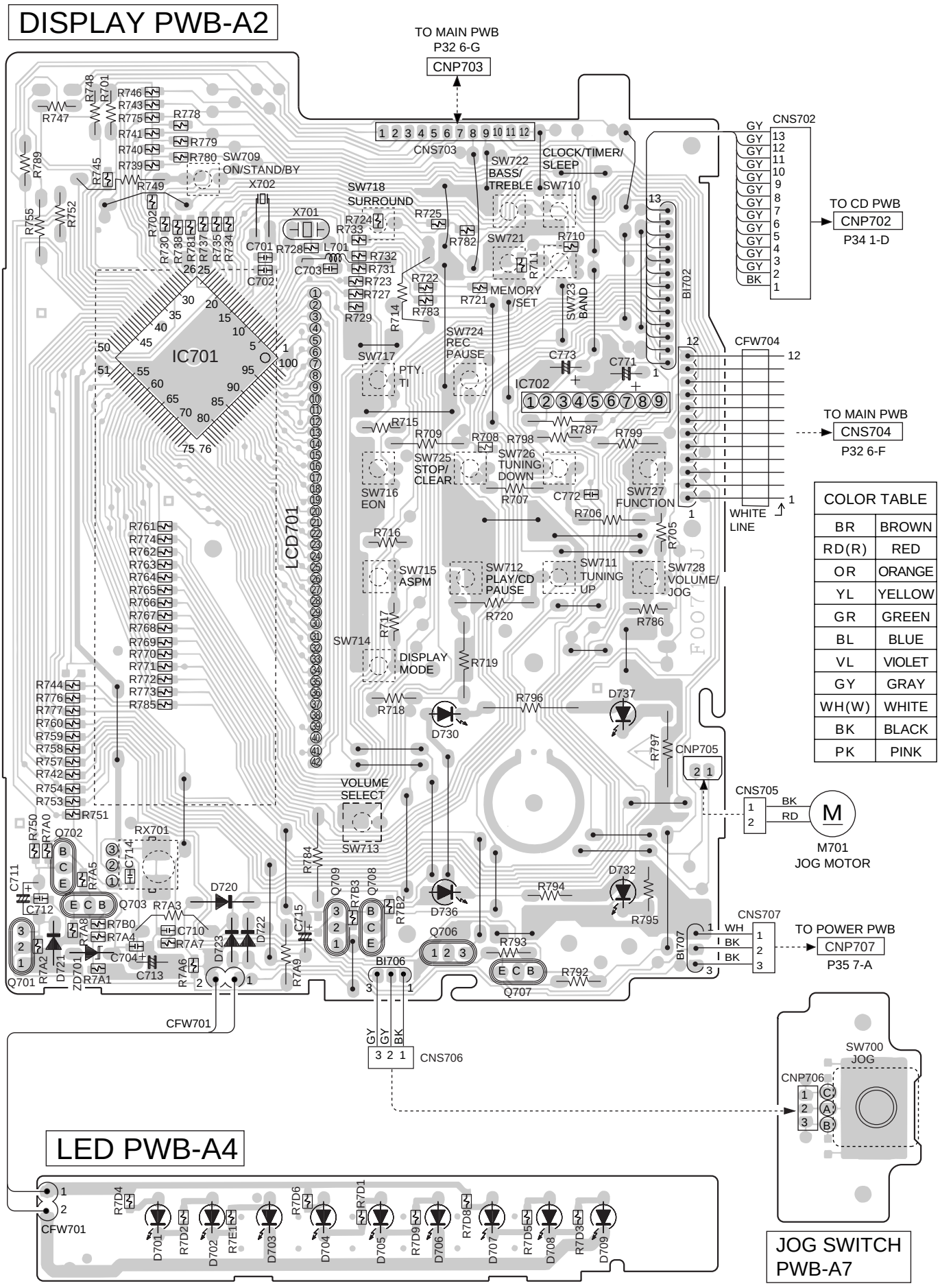
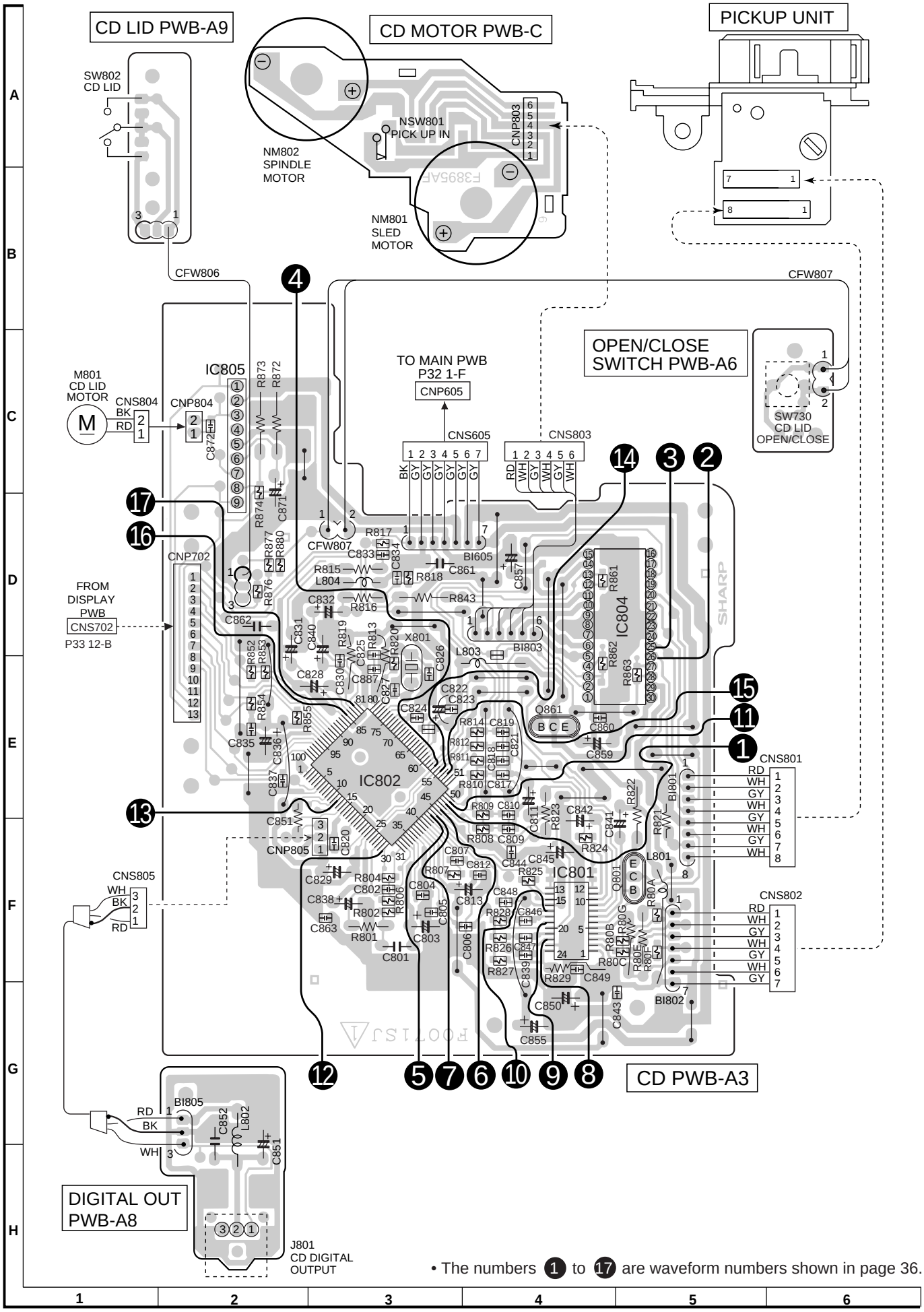


Figure 32 WIRING SIDE OF P.W.BOARD (1/4)



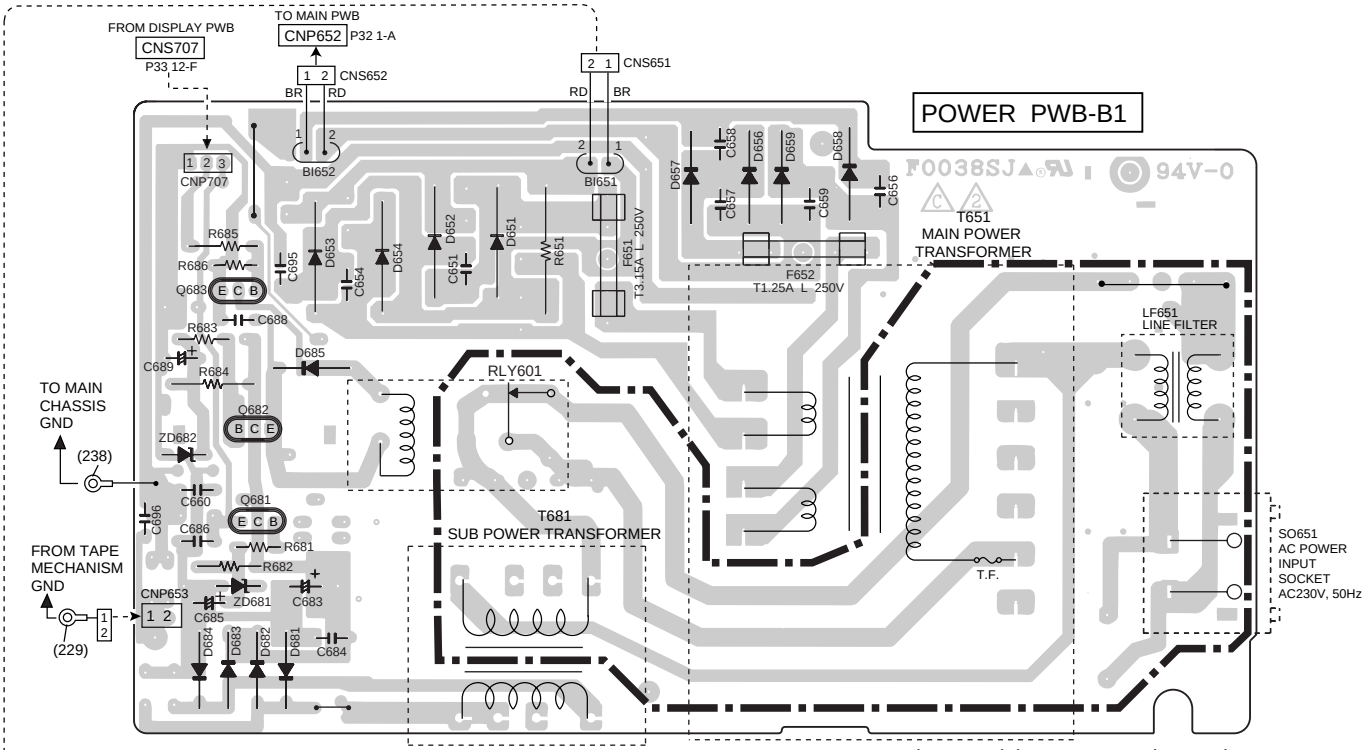
7	8	9	10	11	12

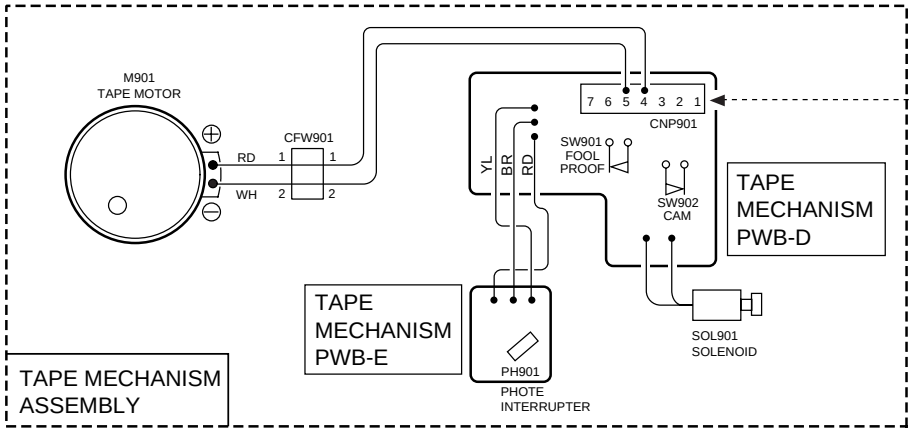
Figure 33 WIRING SIDE OF P.W.BOARD (2/4)



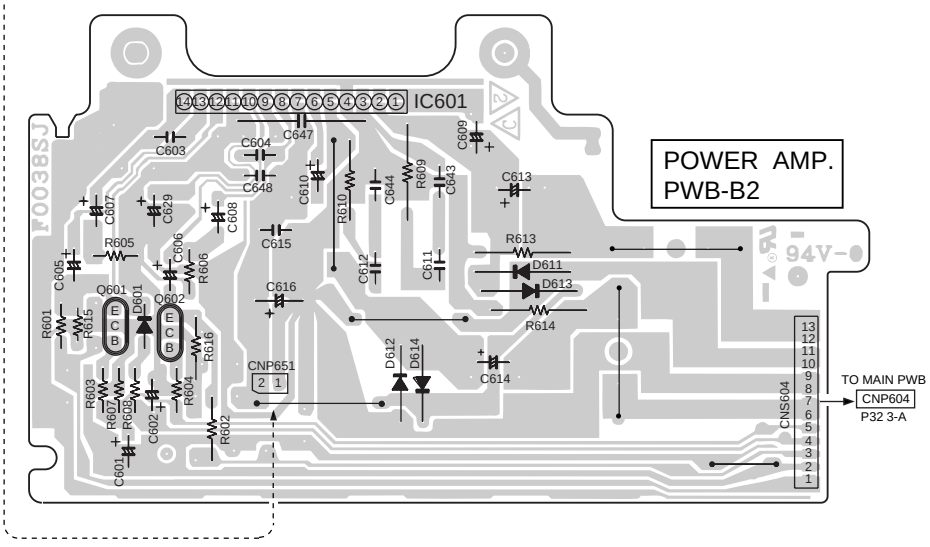
• The numbers ❶ to ⓱ are waveform numbers shown in page 36.

Figure 34 WIRING SIDE OF P.W.BOARD (3/4)





COLOR TABLE	
BR	BROWN
RD(R)	RED
OR	ORANGE
YL	YELLOW
GR	GREEN
BL	BLUE
VL	VIOLET
GY	GRAY
WH(W)	WHITE
BK	BLACK
PK	PINK



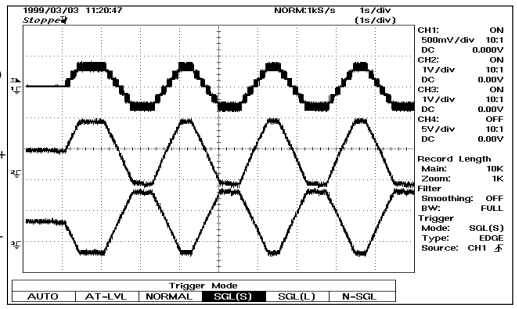
7	8	9	10	11	12

Figure 35 WIRING SIDE OF P.W.BOARD (4/4)

WAVEFORMS OF CD CIRCUIT

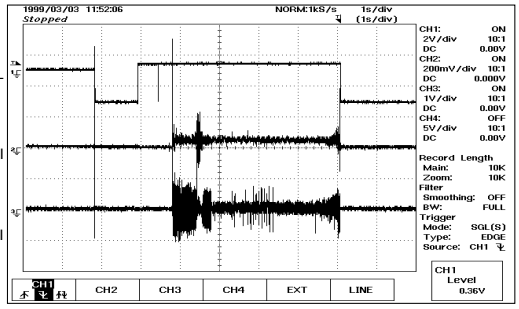
NO DISC FOCUS SEARCH

1 FOO — IC802 48pin
2 FO+ — IC804 26pin
3 FO- — IC804 25pin



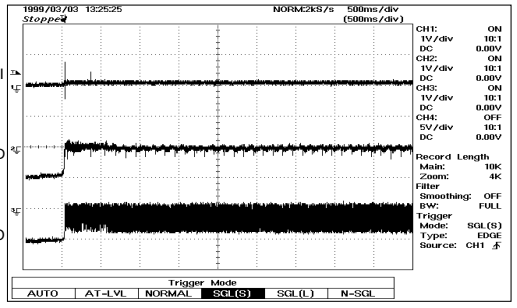
FOCUS SEARCH→TOC IL

4 SEL — IC802 57pin
5 FEI — IC802 43pin
6 TEI — IC802 46pin



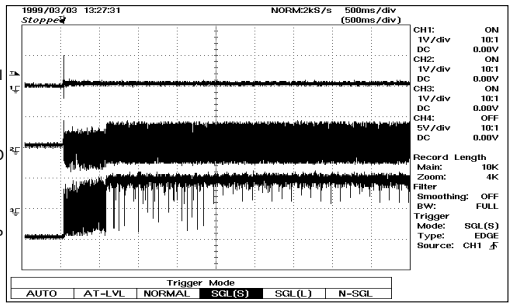
STOP→PLAY

5 FEI — IC802 43pin
7 SBAD — IC802 44pin
8 RFO — IC801 22pin



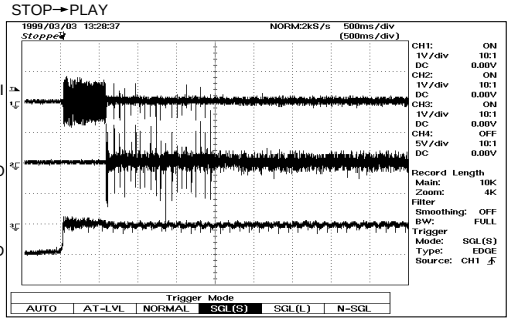
STOP→PLAY

5 FEI — IC802 43pin
9 RFGO — IC801 19pin
10 RFRP — IC801 17pin



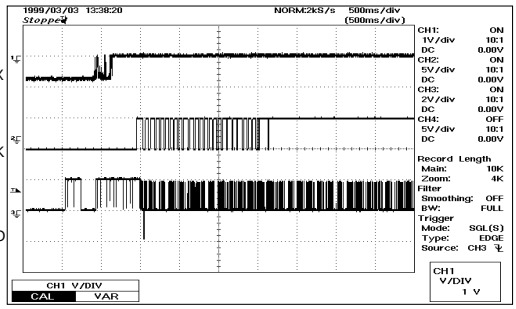
STOP→PLAY

6 TEI — IC802 46pin
11 TRO — IC802 49pin
7 SBAD — IC802 44pin



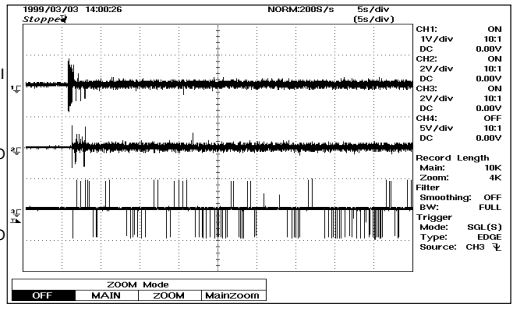
STOP→PLAY

12 TMAX — IC802 30pin
13 SBOK — IC802 12pin
14 DMO — IC802 55pin



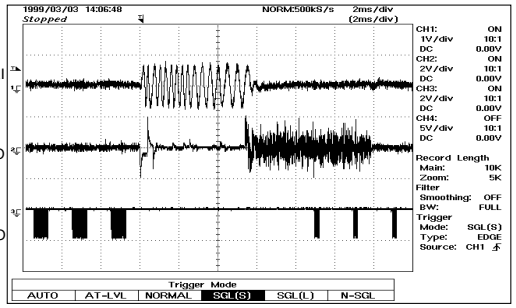
STOP→PLAY

6 TEI — IC802 46pin
11 TRO — IC802 49pin
15 FMO — IC802 53pin



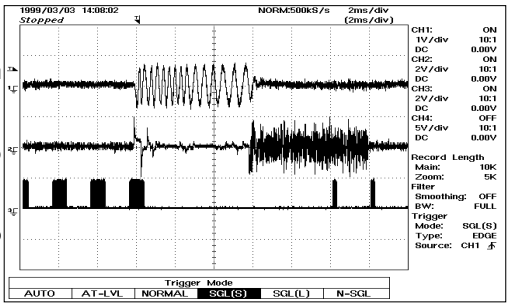
CUE

6 TEI — IC802 46pin
11 TRO — IC802 49pin
15 FMO — IC802 53pin



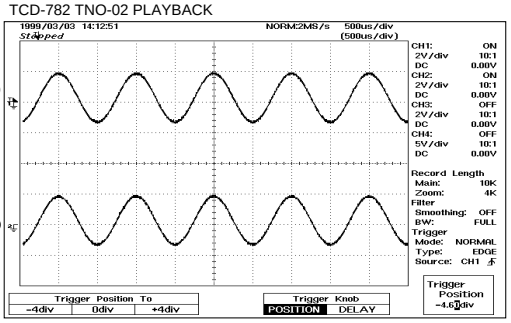
REVIEW

6 TEI — IC802 46pin
11 TRO — IC802 49pin
15 FMO — IC802 53pin



TCD-782 TNO-02 PLAYBACK

16 LO — IC802 85pin
17 RO — IC802 82pin



TROUBLESHOOTING

When the CD does not function

When the CD section does not operate when the objective lens of the optical pickup is dirty, this section may not operate. Clean the objective lens, and check the playback operation. When this section does not operate even after the above step is taken, check the following items.
Remove the cabinet and follow the troubleshooting instructions.
"Track skipping and/or no TOC (Table Of Contents) may be caused by build up of dust other foreign matter on the laser pickup lens. Before attempting any adjustment make certain that the lens is clean. If not, clean it as mentioned below."

Turn the power off.
Gently clean the lens with a lens cleaning tissue and a small amount of isopropyl alcohol.
Do not touch the lens with the bare hand.

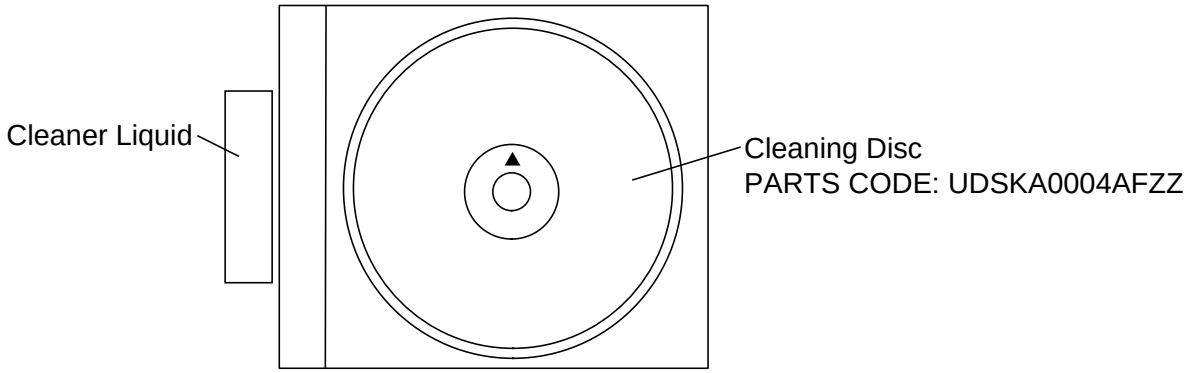
Dust gradually accumulates on the objective lens during use, and it may degrade performance. To avoid this problem, use a cleaning disc designed for CD optical pickup lenses.

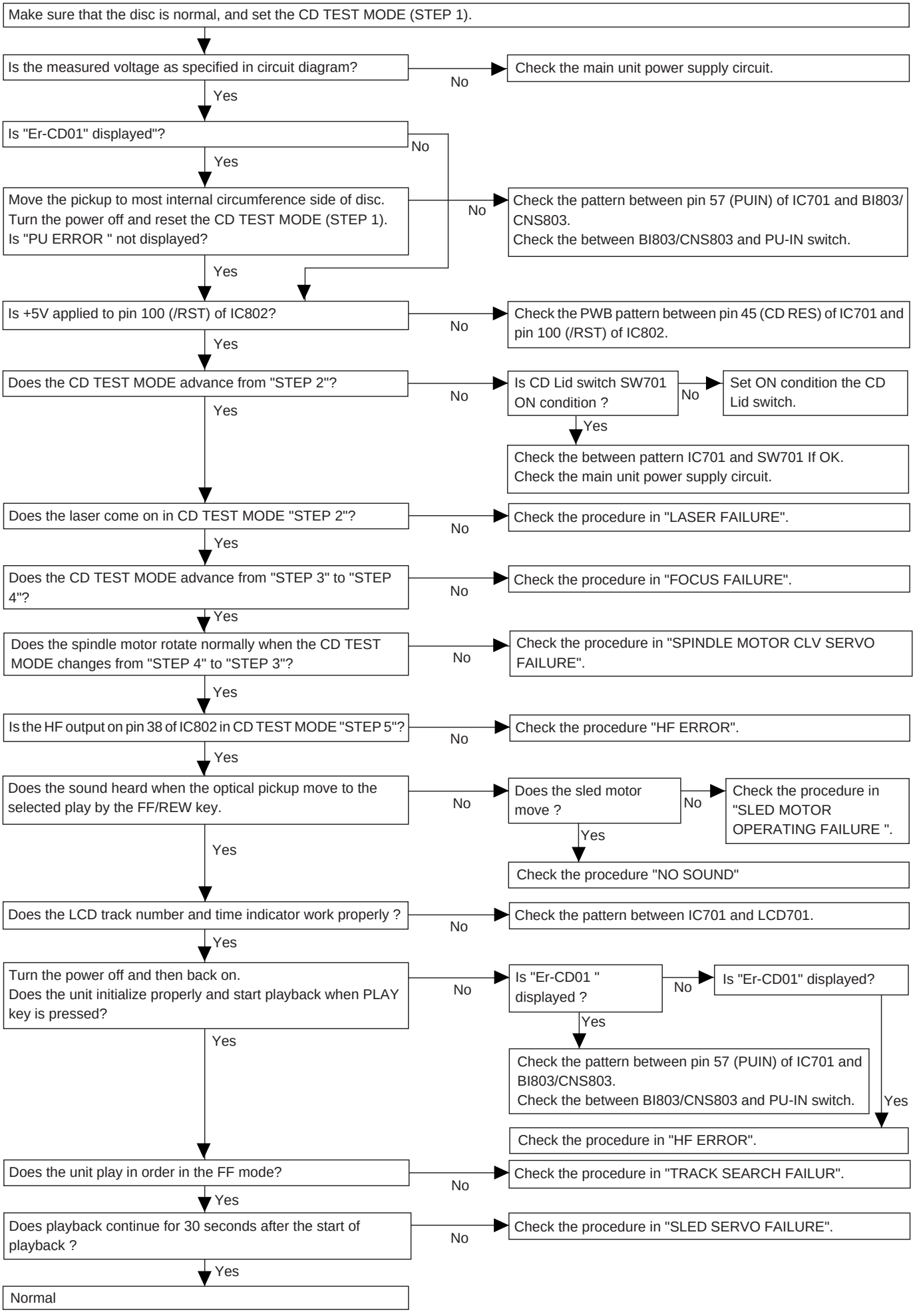
HOW TO USE

1. Using the brush in the cleaner cap, apply 1 or 2 drops of the cleaning fluid to the brush on the CD cleaner disc which has the ▲ mark next to it.
2. Place the CD cleaner disc onto the CD disc tray with the brush side down, then press the play button.
3. You will hear music for about 20 seconds and the CD player will automatically stop. If it continues to turn, press the stop button.

CAUTION

- The CD lens cleaner should be effective for 30~50 operations, however if the brushes become worn out earller then please replace the cleaner disc.
- If the CD cleaner brushes become very wet then wipe off any excess fluid with a soft cloth.
- Do not drink the cleaner fluid or allow it to come in contact with the eyes. In the event of this happening then drink and / or rinse with clean water and seek medical advice.
- The CD cleaner disc must not be used on car CD players or on computer CD ROM drives.
-




Make sure that the disc is normal, and set the CD TEST MODE (STEP 1).
Is the measured voltage as specified in circuit diagram?
No
Check the main unit power supply circuit.
Yes
Is "Er-CD01" displayed"?
No
Yes
Move the pickup to most internal circumference side of disc.
Turn the power off and reset the CD TEST MODE (STEP 1).
Is "PU ERROR " not displayed?
No
Check the pattern between pin 57 (PUIN) of IC701 and BI803/CNS803.
Check the between BI803/CNS803 and PU-IN switch.
Yes
Is +5V applied to pin 100 (/RST) of IC802?
No
Check the PWB pattern between pin 45 (CD RES) of IC701 and pin 100 (/RST) of IC802.
Yes
Does the CD TEST MODE advance from "STEP 2"?
No
Is CD Lid switch SW701 ON condition ?
No
Set ON condition the CD Lid switch.
Yes
Check the between pattern IC701 and SW701 If OK.
Check the main unit power supply circuit.
Yes
Does the laser come on in CD TEST MODE "STEP 2"?
No
Check the procedure in "LASER FAILURE".
Yes
Does the CD TEST MODE advance from "STEP 3" to "STEP 4"?
No
Check the procedure in "FOCUS FAILURE".
Yes
Does the spindle motor rotate normally when the CD TEST MODE changes from "STEP 4" to "STEP 3"?
No
Check the procedure in "SPINDLE MOTOR CLV SERVO FAILURE".
Yes
Is the HF output on pin 38 of IC802 in CD TEST MODE "STEP 5"?
No
Check the procedure "HF ERROR".
Yes
Does the sound heard when the optical pickup move to the selected play by the FF/REW key.
No
Does the sled motor move ?
No
Check the procedure in "SLED MOTOR OPERATING FAILURE ".
Yes
Check the procedure "NO SOUND"
Yes
Does the LCD track number and time indicator work properly ?
No
Check the pattern between IC701 and LCD701.
Yes
Turn the power off and then back on.
Does the unit initialize properly and start playback when PLAY key is pressed?
No
Is "Er-CD01 " displayed ?
No
Is "Er-CD01" displayed?
Yes
Check the pattern between pin 57 (PUIN) of IC701 and BI803/CNS803.
Check the between BI803/CNS803 and PU-IN switch.
Yes
Check the procedure in "HF ERROR".
Yes
Does the unit play in order in the FF mode?
No
Check the procedure in "TRACK SEARCH FAILUR".
Yes
Does playback continue for 30 seconds after the start of playback ?
No
Check the procedure in "SLED SERVO FAILURE".
Yes
Normal

• Laser failure.

Is +6.2V applied to the emiter of Q861 ?
- No → Check the PWB pattern between pin 16 of CNS602 and emiter of Q861.
- Yes ↓

Is +5V applied to the collector of Q861 ?
- No → Check the peripheral parts of IC804 and Q861.
- Yes ↓

Is +5V applied to the pin 62 (VDD) of IC802 ?
- No → Check the PWB pattern between collector of Q861 and pin 62 of IC802.
- Yes ↓

Is +5V applied to the pin 1 (VCC) of IC801 ?
- No → Check the PWB pattern between collector of Q861 and pin 1 of IC801.
- Yes ↓

Is 0V applied to the pin 57 (SEL) of IC802 ?
- No → Does the laser come on when pattern cut between pin 8 (SEL) of IC801 and pin 57 (SEL) of IC802 ?
  - Yes → Check the PWB pattern between IC701 and IC802 (BUCK/CCE/BUS0~3)
  - No ↓
- Yes ↓

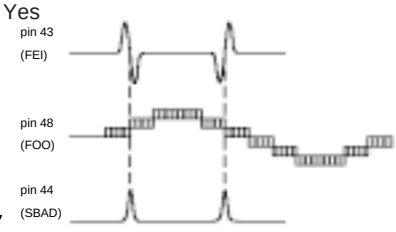
Is approx. 2V applied to the collector of Q801.
- No → Check the peripheral parts of IC801 and Q801. If it is normal, the optical pickup is faulty.
- Yes ↓

Check BI802/CNS802. If it is normal, the optical pickup is faulty.

• Focus failure.

Does the optical pickup move up and down when the disc is removed?
- No → Check as stated in item "FOCUS SERVO SAWTOOTH WAVE FAILURE".
- Yes ↓

Is the following waveform ouput at the pin 43 (FEI) of IC802 when the disc is set?
- No → Check the periphery of IC801 and BI802/CNS802. Is it normal?
  - Yes → The optical pickup is faulty.
- Yes ↓



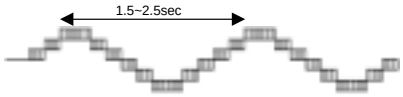
Is the waveform shown above input at the pin 44 (SBAD) of IC802?
- No → Check the pattern between pin 13 of IC801 and pin 44 of IC802. Check the periphery of IC801 and BI802/CNS802.
- Yes ↓

IC801 is faulty.

• Focus servo sawtooth wave failure.

Is sawtooh wave output to the pin 48 (FOO) of IC802 ?
No → IC802 is faulty.

Yes

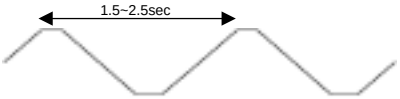


Is +6.2V applied to the pins 1 and 30 (VCC) of IC804 ?
No → Check the PWB pattern between pin 16 of CNS602 and IC804.

Yes

Is sawtooth wave obtained between pins 25 and 26 of IC804 ?
No → Is +5V applied to the pin 2 (MUTE) of IC804 ?
No → Check the PWB pattern between pin 2 of IC804 and pin 58 (CD STB) of IC701.
Yes → Check the PWB pattern between pin 48 (FOO) of IC802 and pins 27 and 28 of IC804. If OK. IC804 is faulty.

Yes



Is sawtooth wave obtained between pins 3 and 4 of BI801/ CNS801 ? (as shown above)
No → Check the PWB pattern between BI801/CNS801 and IC804.

Yes

BI801/CNS801 connection failure or optical pickup failure.

• Spindle motor clv servo failure.

Is following wave output to the pin 55 (DMO) of IC802 when the CD TEST MODE "STEP 3" is changed to " STEP 4" ?
No → Check the procedure in "HF ERROR". If OK. IC802 is faulty.

Yes

Is above wave obtained between pins 5 and 6 of IC804 ?
No → Check the PWB pattern between pin 55 (DMO) of IC802 and pins 5 and 6 of IC804. If OK. IC804 is faulty.

Yes

Is above wave obtained between pins 5 and 6 of BI801/ CNS801 ?
No → Check the PWB pattern between BI801/CNS801 and IC804.

Yes

BI801/CNS801 connection failure or optical pickup failure.

• HF error.

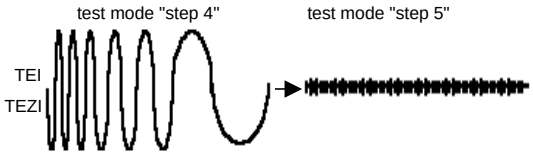
Is output (tracking error signal) obtained at the pins 46 (TEI) and 47 (TEZI) of IC802 the CD TEST MODE "STEP 4" is changed to "STEP 5"?

No → Is output obtained at the pins 2 and 5 of BI802/CNS802

No → Optical pickup failure.

Yes ↓

Yes



Check the periphery of IC801.
Check the PWB pattern between pin 12.
(TEO) of IC801 and pins 46 and 47 of IC802.
Is it normal ?

No → IC801 is faulty.

Yes ↓

Check the PWB pattern between pin 50 (TEO) of IC802 and pin 18 of IC804.
Check the periphery of IC804 and BI801/CNS801.
If OK. Optical pickup failure.

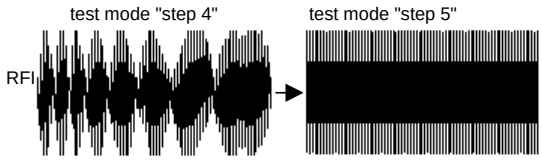
Is output (HF signal) obtained at the pin 38 (RFI) of IC802 when the CD TEST MODE "STEP 4" is changed to "STEP 5"?

No → Is output obtained at the pins 1 and 3, 4 of BI802/CNS802.

No → Optical pickup failure.

Yes ↓

Yes

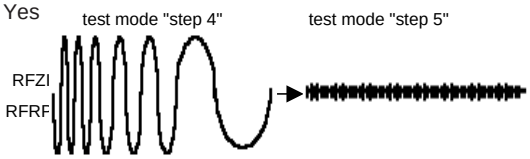


Check the periphery of IC801.
Check the PWB pattern between pin 19 (RFGO) of IC801 and pins 38 (RFI) of IC802.
If OK. IC801 is faulty

Is output (HF signal) obtained at the pins 41 (RFZI) and 42 (RFRP) of IC802 when the CD TEST MODE "STEP 4" is changed to "STEP 5"?

No → Check the periphery of IC801.
Check the PWB pattern between pin17 (RFRP) of IC801 and pins 41 (RFZI) and 42 (RFRP) of IC802.
If OK. IC801 is faulty.

Yes



Is the following wave output to the pin 55 (DMO) of IC802 when the CD TEST MODE "STEP 4" or "STEP 5"?

No → Check the periphery pins 28~32 of IC802.
If OK. IC802 failure.

Yes

Normal.

• No sound.

No sound from both L and R-ch?

No → Check the interval between the pins 82 or 85 of IC802 and the pins 1 or 3 IC601.

Yes ↓

Is +4.5V applied to pin 83 (DVDD) of IC802?

No → Check the PWB pattern between R819 and Q861.

Yes ↓

Is signal of pins 82 and 85 of IC802 output?

No → Check the peripheral parts of IC802. If OK, IC802 is faulty.

Yes ↓

The main PWB is faulty.

• Track search failure

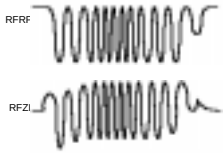
Does the sled motor run in FF/REW state when the SERVO TEST MODE "STEP1" is set?
- No → Check as stated in item "SLED MOTOR OPERATION FAILURE".
- Yes ↓

Is the following wave output to the pin 49 (TRO) of IC802 during track search in normal playback?
- No → IC802 failure.
- Yes ↓

Is the following wave output to the pins 12 (TEO) of IC801 during track search in normal playback?
- No → Check the PWB pattern between pin 49 (TRO) of IC802 and pin 18 of IC804. Check the PWB pattern between pins 20 and 21 of IC804 and Optical pickup. If OK. Optical pickup failure.
- Yes ↓

Is the above wave output to the pins 46 (TEI) and 47 (TEZ) of IC802 during track serch in normal playback?
- No → Check the PWB pattern between pin 12 (TEO) of IC801 and pins 46 and 47 of IC802. If OK. IC801 failure.
- Yes ↓

Is the following wave output to the pin 41 (RFZI) and 42 (RFRP) of IC802 during track search in normal playback?
- No → Check the PWB pattern between pin 17 (RFO) and 18 (RFIS), 19 (RFRP) of IC801 and pins 41 and 42 of IC802. If OK. IC801 failure.
- Yes ↓

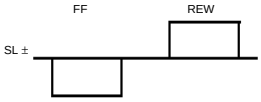


Normal.

• Sled motor operation failure.

Is following sled feed signal output the pin 53 (FMO) of IC802 when FF/REW key is pressed after the CD TEST MODE "STEP 1" is seted?
- No → C801 is faulty.
- Yes ↓

Is following sled feed signal output the pins 12 and 13 of IC804 when FF/REW key is pressed after the CD TEST MODE "STEP 1" is seted?
- No → Check the PWB pattern between pin 53 of IC802 and pins 12 and 13 of IC804.
- Yes ↓



Is sled feed signal output the pins 10 and 11 of IC804?
- No → Check the peripheral parts of IC804. If OK, IC804 is faulty.
- Yes ↓

Is sled feed voltage applied between both terminals of sled motor?
- No → Check the BI803/CNS803.
- Yes ↓

Check the CD mechanism (periphery of sled motor). If the sled motor does not run when DC2.0V is applied to both terminals of sled motor, the sled motor is faulty.

• Sled servo failure.

Is following sled signal output the pin 53 (FMO) of IC802 during playback?
- No → IC802 is faulty.
- Yes ↓

Normal.

FUNCTION TABLE OF IC

IC401 VHiLC75342M-1: Function/Volume Equalizer (LC75342M)

Pin No.	Port Name	Function
1	DI	Serial data and clock input pin for control.
2	CE	Chip enable pin. Data written into an internal latch in a timing of [H] -> [L]. Each analog switch is activated. Data transfer enabled at [H] level.
3	VSS	Ground pin.
4	TEST	Electronic volume control pin. To be set to the VSS potential.
5	LOUT	Volume + equalizer output pin.
6	LBASS2	Bass-band filter comprising capacitor and resistor connection pin.
7	LBASS1	Bass-band filter comprising capacitor and resistor connection pin.
8	LTRE	Capacitor connection pin comprising treble band filter.
9	LIN	Volume + equalizer input pin.
10	LSEL0	Input selector output pin.
11	L4	Input signal pin.
12	L3	Input signal pin.
13	L2	Input signal pin.
14	L1	Input signal pin.
15*	NC	No CONNECT pin. To be open or connected to VSS.
16*	NC	No CONNECT pin. To be open or connected to VSS.
17	R1	Input signal pin.
18	R2	Input signal pin.
19	R3	Input signal pin.
20	R4	Input signal pin.
21	RSEL0	Input selector output pin.
22	RIN	Volume + equalizer input pin.
23	RTRE	Capacitor connection pin comprising treble band filter.
24	RBASS1	Bass-band filter comprising capacitor and resistor connection pin.
25	RBASS2	Bass-band filter comprising capacitor and resistor connection pin.
26	ROUT	Volume + equalizer output pin.
27*	NC	No CONNECT pin. To be open or connected to VSS.
28	Vref	0.5 x VDD voltage generation block for analog ground. Capacitor of several 10μF to be connected between Vref and AWSS (VSS) as a counter measure against power ripple.
29	VDD	Supply pin.
30	CL	Serial data and clock input pin for control.

In this unit, the terminal with asterisk mark (*) is (open) terminal which is not connected to the outside.

IC401 VHiLC75342M-1: Function/Volume Equalizer (LC75342M)

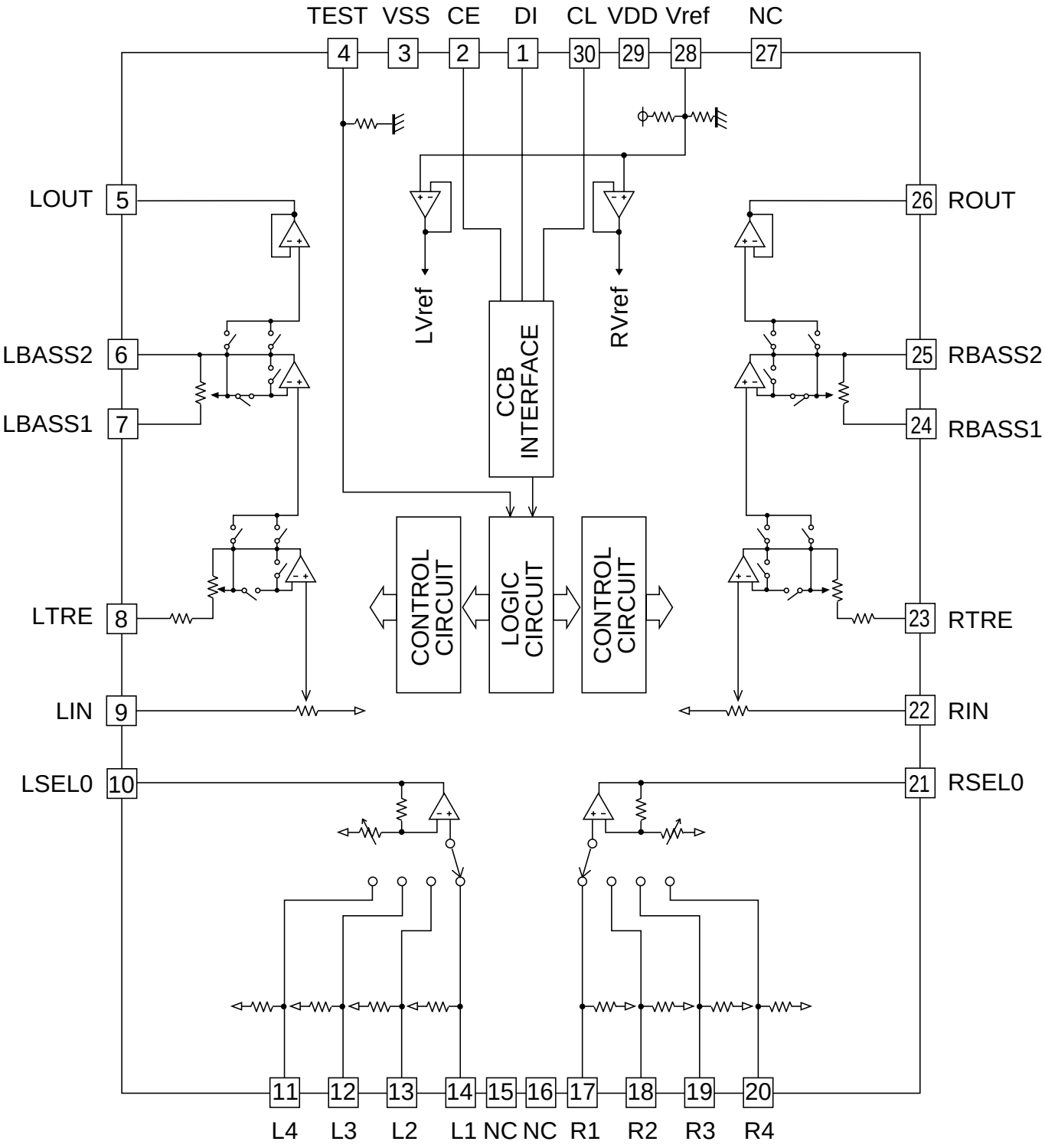


Figure 44 BLOCK DIAGRAM OF IC

IC701 RH-iX0026SJZZ: System Control Microcomputer (IX0026SJ) (1/2)

Pin No.	Terminal Name	Input/Output	Function
1-4	COM3-COM0	Output	LCD common output terminal.
5-7	VLC3-VLC1	—	LCD power supply terminal.
8	VDD	—	Microcomputer power supply +5V.
9	OSC2	Output	Oscillator ground terminal for main clock. f=8MHz
10	OSC1	Input	Oscillator ground terminal for main clock. f=8MHz
11	VSS	—	Microcomputer power supply GND.
12	XI	Input	Oscillator ground terminal for sub clock. f=32.768kHz
13	XO	Output	Oscillator ground terminal for sub clock. f=32.768kHz
14	MMOD	Input	Memory mode selection terminal.
15	VREF-	—	Power supply GND for AD converter.
16	KEY0 AN0/PA0	Input	CD lid status detection input.
17	KEY1 AN0/PA1	Input	Operation button input, Max-8 buttons.
18	KEY2 AN0/PA2	Input	Operation button input, Max-8 buttons.
19	KEY3 AN0/PA3	Input	MODEL/TUNER destination input.
20	KEY4 AN0/PA4	Input	Current detection of CD lid control motor. Used to decide the CD lid drive error to control it.
21*	KEY5 AN0/PA5	Input	CD servo auto adjustment mode selection input.
22	KEY6 AN0/PA6	Input	Tape mechanism operating status detection input. Decides the F.P/CAM-SW status with A/D value.
23	KEY7 AN7/PA7	Input	Tuner signal meter (S meter) voltage input terminal.
24	VREF+	—	Power supply for A/D converter +5V.
25	TXD SBO0/P00	Output	Data output terminal to TUNER PLL IC.
26	RXD SBI0/P01	Input	Data input from TUNER PLL IC
27	SBT0/P02	Output	Synchronous clock output with TUNER PLL IC
28	SBO1/P03	Output	Enable output of TUNER PLL IC. "L" = OFF "H" = ON
29	SBI1/P04	Output	Tape mechanism solenoid drive control output.
30	SBT1/P05	Output	Tape mechanism motor drive control output.
31	DK/BZER P06	Output	Recording/playback selection output of tape circuit. "H" = Recording mode, "L" = Playback mode
32	RST/P27	Input	Reset signal input
33	RMOUT P10	Input	CLOCK/TIMER/SLEEP button input.
34	P11	Input	Tape run/END detection input. Decided as tape run if pulse is input.
35	TM2IO P12	Output	Recording bias oscillation circuit control output. "H" = Bias oscillation, "L" = oscillation stop.
36*	TM3IO P13	Output	Recording bias oscillation frequency selection control output.
37	TM4IO P14	Input	Power (POWER) button input detection.
38	IRQ0 P20	Input	Switches to the HALT mode when changing to . "L" at power failure detection input.
39	SENS IRQ1/P21	Input	Remote control signal input.
40	IRQ2 P22	Input	Synchronous clock input with RDS IC.
41	IRQ3 P23	Input	Jog dial UP pulse input.
42	IRQ4 P24	Input	Jog dial DOWN pulse input.
43	P30	Output	SURROUND control output.
44	P31	Output	POWER IC STAND-BY terminal CONTROL.
45	P32	Output	Power mute output. "H" = MUTE ON "L" = MUTE OFF
46	LED0 WE/P50	Output	CD servo power supply circuit control output. "H" = CD power ON "L" = CD power OFF
47	LED1 RE/P51	Output	Main TRANS RELAY CONTROL. "H" = ON "L" = OFF
48	LED2 CS/P52	Input	Data input from RDS IC.
49	LDE3/S51 A16/P53	Input	Radio stereo broadcast reception detection input. "L" = During stereo broadcast reception
50	LED4/S50 A17/P54	Input	Broadcast reception status detection input. "L" = During broadcasting signal reception
51	SEG49 P60/A0	Output	LCD backlight control signal output. "H" = Backlight ON, "L" = Backlight OFF
52*	SEG48 P61/A1	Output	
53	SEG47 P62/A2	Output	LED illumination control of electric JOG dial. "H" = ON "L" = OFF

In this unit, the terminal with asterisk mark (*) is (open) terminal which is not connected to the outside.

IC701 RH-iX0026SJZZ: System Control Microcomputer (IX0026SJ) (2/2)

Pin No.	Terminal Name	Input/Output	Function
54	SEG46 P63/A3	Output	Electric JOG dial UP.
55	SEG45 P64/A4	Output	Electric JOG dial DOWN.
56	SEG44 P65/A5	Output	Electric CD lid OPEN.
57	SEG43 P66/A6	Output	Electric CD lid CLOSE.
58	SEG42 P67/A7	Input	CD pickup position detection SW input. "L" = Innerst periphery
59	SEG41 P70/A8	Output	Reset signal output for TC9462F
60	SEG40 P71/A9	Output	ON/OFF output terminal of CD servo control IC. "H" = Servo ON "L" = Servo stand-by
61-64	SEG39 P72/A10-SEG36 P75/A13	Input/Output	Data input/output terminal for TC9462F control.
65	SEG35 P76/A14	Output	Data synchronous clock output for TC9462F.
66	SEG34 P77/A15	Output	Chip enable terminal for TC9462F. "L" = BUS terminal active
67	SEG33 P87/D7	—	LCD segment output.
68	SEG32 P86/D6	—	LCD segment output.
69-74	SEG31 P85/D5-SEG26 P80/D0	—	LCD segment output Note: Since RH-******SJZZ, SEG0 of the LCD is connected by the 24-pin LCD to SEG7 of the microcomputer output terminal, and connections are made up to the shift SEG26 in order.
75-100	SEG25-SEG0	—	LCD segment output Note: Since RH-******SJZZ, SEG0 of the LCD is connected by the 24-pin LCD to SEG7 of the microcomputer output terminal, and connections are made up to the shift SEG26 in order.

IC701 RH-iX0026SJZZ: System Control Microcomputer (IX0026SJ)

SEG0	SEG1	SEG2	SEG3	SEG4	SEG5	SEG6	SEG7	SEG8	SEG9	SEG10	SEG11	SEG12	SEG13	SEG14	SEG15	SEG16	SEG17	SEG18	SEG19	SEG20	SEG21	SEG22	SEG23	SEG24	
S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	
100	99	98	97	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81	80	79	78	77	76	

COM3	O	1
COM2	O	2
COM1	O	3
COM0	O	4
VLC3		5
VLC2		6
VLC1		7
VDD		8
OSC2	O	9
OSC1	I	10
VSS		11
XI	I	12
XO	O	13
MMOD	I	14
VREF-		15
CLID_SW	I	16
KEY1	I	17
KEY2	I	18
MODEL	I	19
CLID_PRO	I	20
CD_CONF	I	21
TAPE_SW	I	22
VSM	I	23
VREF+		24
DI	O	25

75	S	SEG25
74	S	SEG26
73	S	SEG27
72	S	SEG28
71	S	SEG29
70	S	SEG30
69	S	SEG31
68	S	SEG32
67	S	SEG33
66	O	CCE
65	O	BUCK
64	I/O	BUS3
63	I/O	BUS2
62	I/O	BUS1
61	I/O	BUS0
60	O	CD_STB
59	O	CD_RES
58	I	PU-IN
57	O	CLID_DW
56	O	CLID_UP
55	O	MVOL_DW
54	O	MVOL_UP
53	O	MVOL_IND
52		
51	O	B-LIGHT

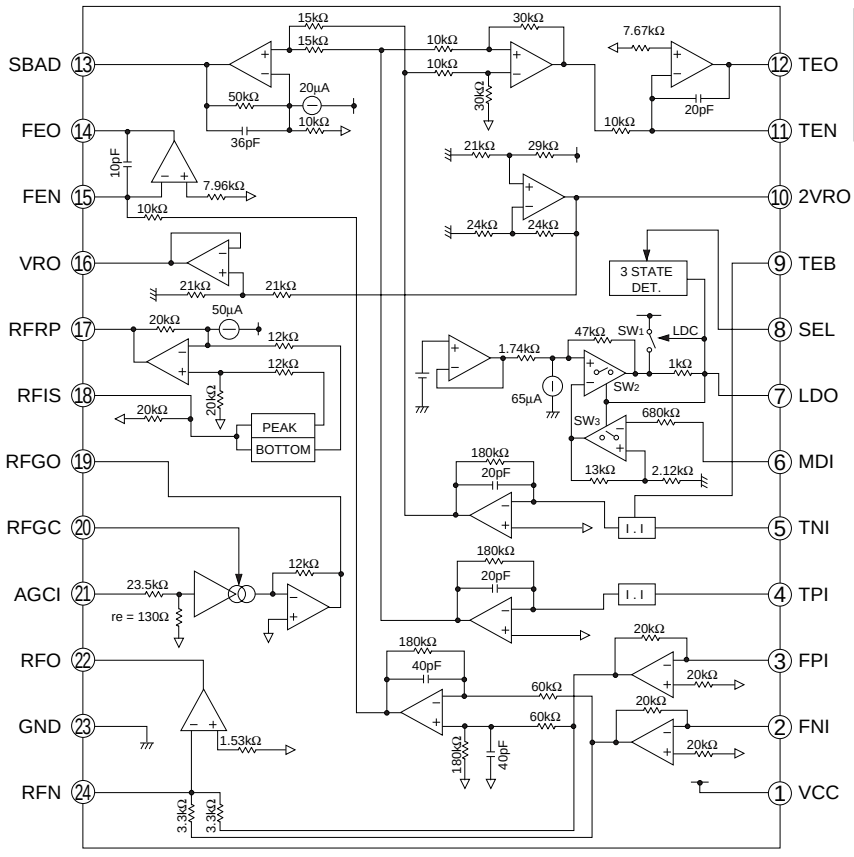
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	
I	O	O	O	O	O	I	I	I	O	O	I	I	I	I	I	I	O	O	O	O	O	O	O	I	
DO	CL	CE	SOL	MOT	REC	RESET	CLOCK	RUN_PLS	BIAS	B-CAN	POWER	SYS STOP	REMOCON	CLE	JOG UP	JOG DOWN	SURR	P-STB	P-MUTE	CD+B	P-CONT	DATA	STEREO	SD	

Figure 46 BLOCK DIAGRAM OF IC

IC801 VHiTA2109F/-1:Servo Pre Amp. (TA2109F)

Pin No.	Terminal Name	Input/Output	Function
1	VCC	—	Power voltage terminal
2	FNI	Input	Main beam amp input terminal
3	FPI	Input	Main beam amp input terminal
4	TPI	Input	Sub-beam amp input terminal
5	TNI	Input	Sub-beam amp input terminal
6	MDI	Input	Monitor photodiode amp input terminal
7	LDO	Output	Laser diode amp output terminal
8	SEL	Input	Laser diode control signal input and APC circuit ON/OFF signal input terminal
9	TEB	Input	Tracking error balance adjustment signal input terminal To be controlled by 3-value PWM signal. (PWM carrier = 88.2 kHz)
10	2VRO	Output	Standard voltage (2VR) output terminal. When Vcc = 5V, 2VR = 4.2V.
11	TEN	Input	Tracking error signal generation amp reversed phase input terminal
12	TEO	Output	Tracking error signal generation amp output terminal
13	SBAD	Output	Sub-beam addition signal output terminal
14	FEO	Output	Focus error signal generation amp output terminal
15	FEN	Input	Focus error signal generation amp reversed phase input terminal
16	VRO	Output	Standard voltage (VR) output terminal. When Vcc = 5V, VR = 2.1V.
17	RFRP	Output	Track count signal generation amp output terminal
18	RFIS	Input	RFRP detection circuit input terminal
19	RFGO	Output	RF signal output terminal
20	RFGC	Input	RF amplitude adjustment control signal input terminal The amplitude of RF signal can be controlled by using the 3-value PWM signal (PWM carrier = 88.2 kHz) which is output from the RFGC terminal of TC9432F.
21	AGCI	Input	RF signal amplitude adjustment amp input terminal
22	RFO	Output	RF signal generation amp output terminal
23	GND	—	GND terminal
24	RFN	Input	RF reversed phase input terminal

IC801 VHiTA2109F/-1:Servo Pre Amp. (TA2109F)



SEL	LDC		
	SW1	SW2	SW3
L	ON	OFF	OFF
HiZ	OFF	ON	ON
H	OFF	ON	ON

Figure 47 BLOCK DIAGRAM OF IC

IC802 VHiTC9462F/-1: Servo/Signal Control (TC9462F) (1/3)

<table>
<tr><th>Pin No.</th><th>Port Name</th><th>Input/Output</th><th>Function</th></tr>
<tr><td>1*</td><td>TEST0</td><td>Input</td><td>Test mode terminal. To be opened usually.</td></tr>
<tr><td>2*
3*</td><td>/HSO
/UHSO</td><td>Output
Output</td><td>Playback speed mode flag output terminal.
<table>
<tr><th>/UHSO</th><th>/HSO</th><th>Playback speed</th></tr>
<tr><td>H</td><td>H</td><td>x1 speed playback</td></tr>
<tr><td>H</td><td>L</td><td>x2 speed playback</td></tr>
<tr><td>L</td><td>H</td><td>x4 speed playback</td></tr>
<tr><td>L</td><td>L</td><td>—</td></tr>
</table></td></tr>
<tr><td>4*</td><td>EMPH</td><td>Output</td><td>Sub-code Q data emphasis flag output terminal. "H": Emphasis ON "L": Emphasis OFF
The output polarity can be inverted by command.</td></tr>
<tr><td>5*</td><td>LRCK</td><td>Output</td><td>Channel clock (44.1 kHz) output terminal. "L": L channel "H": R channel
The output polarity can be inverted by command.</td></tr>
<tr><td>6</td><td>VSS</td><td>—</td><td>Digital ground terminal.</td></tr>
<tr><td>7*</td><td>BCK</td><td>Output</td><td>Bit clock (1.4122 MHz) output terminal.</td></tr>
<tr><td>8*</td><td>AOUT</td><td>Output</td><td>Audio data output terminal.</td></tr>
<tr><td>9</td><td>DOUT</td><td>Output</td><td>Digital out output terminal.</td></tr>
<tr><td>10*</td><td>MBOV</td><td>Output</td><td>Buffer memory over signal output terminal. "H": Over</td></tr>
<tr><td>11*</td><td>IPF</td><td>Output</td><td>Correction flag output terminal.
"H": When AOUT output is correction-disabled symbol in case of C2 correction output.</td></tr>
<tr><td>12*</td><td>SBOK</td><td>Output</td><td>Sub-code Q data CRCC judgment result output terminal. "H": When judgment result is OK.</td></tr>
<tr><td>13*</td><td>CLCK</td><td>Input/Output</td><td>Sub-code P-W data read clock output/input terminal. Selectable with command bit.</td></tr>
<tr><td>14</td><td>VDD</td><td>—</td><td>Digital + power terminal.</td></tr>
<tr><td>15</td><td>VSS</td><td>—</td><td>Digital ground terminal.</td></tr>
<tr><td>16*</td><td>DATA</td><td>Output</td><td>Sub-code P-W data output terminal.</td></tr>
<tr><td>17*</td><td>SFSY</td><td>Output</td><td>Playback system frame sync signal output terminal.</td></tr>
<tr><td>18*</td><td>SBSY</td><td>Output</td><td>Sub-code block sync output terminal. "H": On S1 position when the sub-code sync is detected.</td></tr>
<tr><td>19*</td><td>SPCK</td><td>Output</td><td>Processor status signal read clock (176.4 kHz) output terminal.</td></tr>
<tr><td>20*</td><td>SPDA</td><td>Output</td><td>Processor status signal output terminal.</td></tr>
<tr><td>21*</td><td>COFS</td><td>Output</td><td>Correction system frame clock (7.35 kHz) output terminal.</td></tr>
<tr><td>22*</td><td>MONIT</td><td>Output</td><td>LSI internal signal monitor terminal.
It is possible to monitor the DSP internal flag and PLL system clock with the microcomputer command. Terminal for serial output of text data according to command.</td></tr>
<tr><td>23</td><td>VDD</td><td>—</td><td>Digital + power terminal.</td></tr>
<tr><td>24</td><td>TESIO0</td><td>Input</td><td>Test input/output terminal. To be fixed to "L" usually.
Terminal to input the text data read clock according to command.</td></tr>
<tr><td>25</td><td>P2VREF</td><td>—</td><td>2VREF terminal for PLL system.</td></tr>
<tr><td>26*</td><td>HSSW</td><td>Output</td><td>VREF voltage in case of x2 speed/x4 speed.</td></tr>
<tr><td>27*</td><td>ZDET</td><td>Output</td><td>1-bit DAC zero detection flag output terminal.</td></tr>
<tr><td>28</td><td>PDO</td><td>Output</td><td>Terminal to output the phase difference between EFM signal and PLCK signal.</td></tr>
<tr><td>29*</td><td>TMAXS</td><td>Output</td><td>TMAX detection result output terminal. To be selected with command bit TMPS.</td></tr>
<tr><td>30</td><td>TMAX</td><td>Output</td><td>TMAX detection result output terminal. To be selected with command bit TMPS.
<table>
<tr><th>TMAX detection result</th><th>TMAX output</th></tr>
<tr><td>Longer than specific period</td><td>"P2VREF"</td></tr>
<tr><td>Shorter than specific period</td><td>"VSS"</td></tr>
<tr><td>Within specific period</td><td>"HIZ"</td></tr>
</table></td></tr>
<tr><td>31</td><td>LPFN</td><td>Input</td><td>Low-pass filter amp inverted input terminal.</td></tr>
<tr><td>32</td><td>LPFO</td><td>Output</td><td>Low-pass filter amp output terminal.</td></tr>
<tr><td>33</td><td>PVREF</td><td>—</td><td>VREF terminal for PLL system.</td></tr>
<tr><td>34</td><td>VCOREF</td><td>Input</td><td>VCO center frequency standard level terminal. To be fixed to PVref usually.</td></tr>
<tr><td>35</td><td>VCOF</td><td>Output</td><td>VCO filter terminal.</td></tr>
<tr><td>36</td><td>AVSS</td><td>—</td><td>Analog system ground terminal.</td></tr>
<tr><td>37</td><td>SLCO</td><td>Output</td><td>Data slice level generation DAC output terminal.</td></tr>
<tr><td>38</td><td>RFI</td><td>Input</td><td>RF signal input terminal.</td></tr>
</table>

In this unit, the terminal with asterisk mark (*) is (open) terminal which is not connected to the outside.

IC802 VHiTC9462F/-1: Servo/Signal Control (TC9462F) (2/3)

Pin No.	Port Name	Input/Output	Function
39	AVDD	—	Analog system power terminal.
40	RFCT	Input	RFRP signal center level input terminal.
41	RFZI	Input	RFRP zero cross input terminal.
42	RFIP	Input	RF ripple signal input terminal.
43	FEI	Input	Focus error signal input terminal.
44	SBAD	Input	Sub-beam addition signal input terminal.
45	TSIN	Input	Test input terminal. To be fixed to Vref usually.
46	TEI	Input	Tacking error input terminal. (Tracking servo ON: Taking-in).
47	TEZI	Input	Tracking error, zero cross input termina.l
48	FOO	Output	Focus equalizer output terminal.
49	TRO	Output	Tracking equalizer output terminal.
50	VREF	—	Analog standard power terminal.
51	RFGC	Output	RF amplitude adjustment control signal output terminal. 3-value PWM signal is output. (PWM carrier = 88.2 kHz)
52	TEBC	Output	Tracking balance control signal output terminal. 3-value PWM signal is output. (PWM carrier = 88.2 kHz)
53	FMO	Output	Feed equalizer output terminal. 3-value PWM signal is output. (PWM carrier = 88.2 kHz)
54*	FVO	Output	Speed error signal or feed search EQ output terminal. 3-value PWM signal is output. (PWM carrier = 88.2 kHz)
55	DMO	Output	Disc equalizer output terminal. 3-value PWM signal is output. (PWM carrier = DSP system 88.2 kHz, sync with PXO)
56	2VREF	—	Analog standard power terminal (2xVREF)
57	SEL	Output	APC circuit ON/OFF signal output terminal. When laser is ON and UHS = L, "Hi-Z". When UHS = H, "H" output is obtained.
58*	FLGA	Output	Internal signal monitor external flag output terminal. TEZC, FOON, FOK and RFZC signals can be selected with command.
59*	FLGB	Output	Internal signal monitor external flag output terminal. DFCT, FOON, FMON and RFZC signals can be selected with command.
60*	FLGC	Output	Internal signal monitor external flag output terminal. TRON, TRSR, FOK, and SRCH signals can be selected with command.
61*	FLGD	Output	Internal signal monitor external flag output terminal. TRON, DMON, HYS and SHC signals can be selected with command.
62	VDD	—	Digital + power terminal.
63	VSS	—	Digital ground terminal.
64* 65* 66* 67*	IO0 IO1 IO2 IO3	Input/Output	General-use I/O port. The input port and output port can be selected with command. In case of input port the terminal state (H/L) can be read with the read command. In case of output port the terminal state (H/L/HiZ) can be controlled with command.
68*	/DMOUT	Input	Terminal to set the mode to output 2-value PWM of feed equalizer from IO0,1 terminal and 2-value PWM of disc equalizer from IO2,3 terminal. "L" active
69*	/CKSE	Input	To be opened usually.
70*	/DACT	Input	DAC test mode terminal. To be opened usually.
71	TESIN	Input	Test input terminal (externally provided VCO clock input terminal). To be fixed to "L" usually.
72	TESIO1	Input	Test input/output terminal. To be fixed to "L" usually.
73	VSS	—	Digital ground terminal.
74	PXI	Input	DSP system clock oscillation circuit input terminal. To be fixed to "L" usually.
75*	PXO	Output	DSP system clock oscillation circuit output terminal.
76	VDD	—	Digital + power terminal.
77	XVSS	—	System clock oscillation circuit ground terminal.
78	XI	Input	System clock oscillation input terminal.
79	XO	Output	System clock oscillation circuit output terminal.
80	XVDD	—	System clock oscillation circuit + power terminal.
81	DVSR	—	R channel D/A converting section power terminal.
82	RO	Output	R channel data forward rotation output terminal.

In this unit, the terminal with asterisk mark (*) is (open) terminal which is not connected to the outside.

IC802 VHiTC9462F/-1: Servo/Signal Control (TC9462F) (3/3)

Pin No.	Port Name	Input/Output	Function
83	DVDD	—	D/A converting section power terminal.
84	DVR	—	Reference voltage terminal.
85	LO	Output	L channel data forward rotation output terminal.
86	DVSL	—	L channel D/A converting section power terminal.
87*	TEST1	Input	Test mode terminal. To be opened usually.
88*	TEST2	Input	Test mode terminal. To be opened usually.
89*	TEST3	Input	Test mode terminal. To be opened usually.
90-93	BUS0-BUS3	Input/Output	Microcomputer interface data input/output terminal.
94	VDD	—	Digital + power terminal.
95	VSS	—	Digital ground terminal.
96	BUCK	Input	Microcomputer interface clock input terminal.
97	/CCE	Input	Microcomputer interface chip enable signal input terminal. "L": BUS0 to 3 is active.
98*	TEST4	Input	Test mode termina. To be opened usually.
99*	/TSMOD	Input	Local test mode selection terminal.
100	/RST	Input	Reset signal input terminal. "L": Reset.

In this unit, the terminal with asterisk mark (*) is (open) terminal which is not connected to the outside.

IC802 VHiTC9462F/-1: Servo/Signal Control (TC9462F)

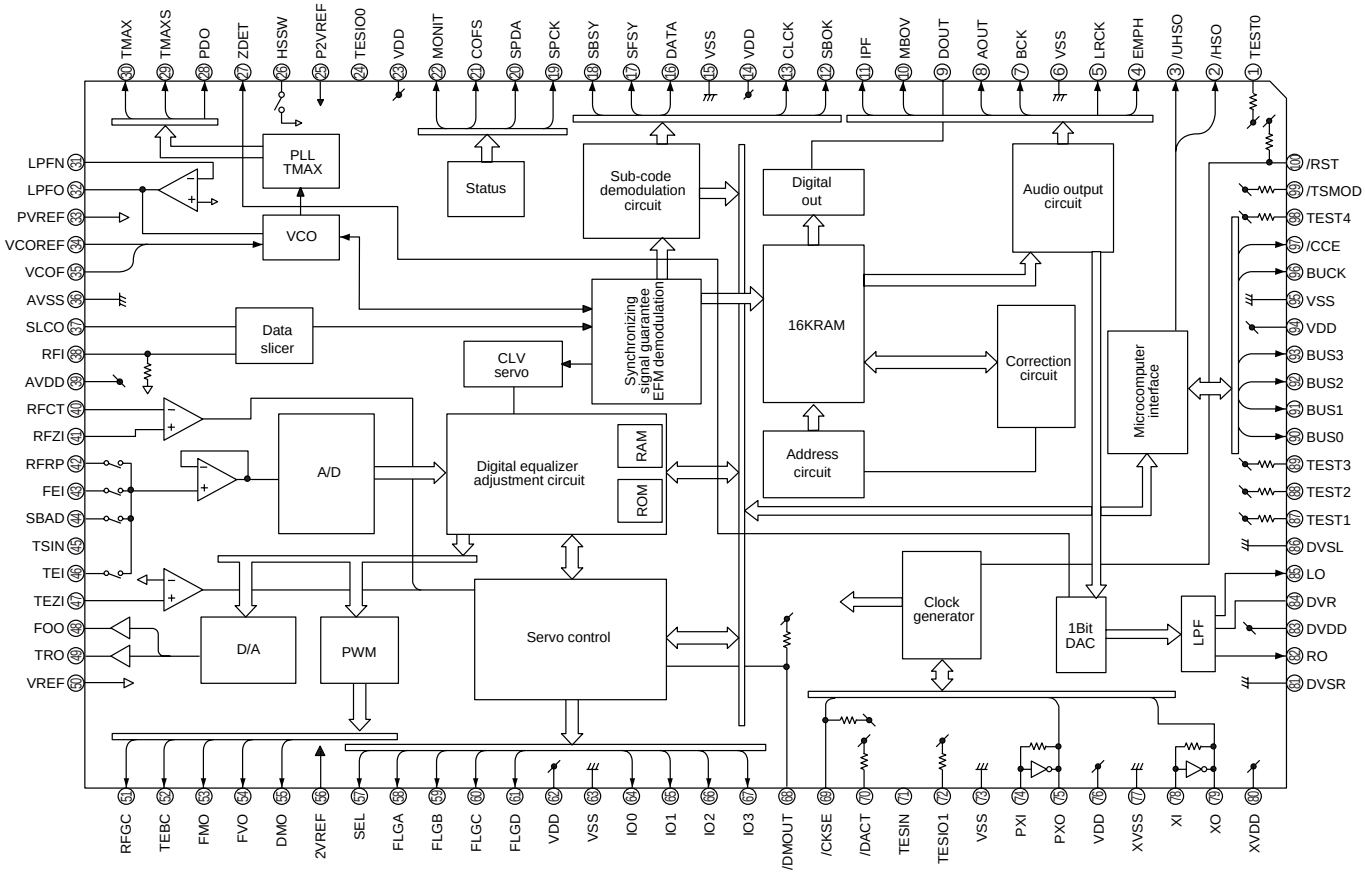


Figure 50 BLOCK DIAGRAM OF IC

IC804 VHiLA6541D/-1: Focus/Tracking/Spin/Sled Driver (LA6541D)

Pin No.	Port Name	Function
1	VCC	Power (short-circuited to pin 30)
2	MUTE	All BTL AMP output ON/OFF
3	VIN1	BTL AMP1 input terminal
4	VG1	BTL AMP1 input terminal (for gain adjustment)
5	VO1	BTL AMP1 output terminal (noninversion side)
6	VO2	BTL AMP1 output terminal (inversion side)
7	GND	GND terminal (lowest potential)
8	GND	GND terminal (lowest potential)
9	GND	GND terminal (lowest potential)
10	VO3	Output terminal of BTL AMP2 (inversion side)
11	VO4	Output terminal of BTL AMP2 (noninversion side)
12	VG2	Input terminal of BTL AMP2 (for gain adjustment)
13	VIN2	Input terminal of BTL AMP2
14	REG OUT	Connect the collector of externally provided transistor (PNP). 5V power output
15	REG IN	Connect the base of externally provided transistor (PNP).
16*	RES	Reset output
17*	CD	Reset output delay time setting (capacitor provided externally)
18	VIN3	Input terminal of BTL AMP3
19*	VG3	Input terminal of BTL AMP3 (for gain adjustment)
20	VO5	Output terminal of BTL AMP3 (noninversion side)
21	VO6	Output terminal of BTL AMP3 (inversion side)
22	GND	GND terminal (lowest potential)
23	GND	GND terminal (lowest potential)
24	GND	GND terminal (lowest potential)
25	VO7	Output terminal of BTL AMP4 (inversion side)
26	VO8	Output terminal of BTL AMP4 (noninversion side)
27	VG4	Input terminal of BTL AMP4 (for gain adjustment)
28	VIN4	Input terminal of BTL AMP4
29	VREF	Application of standard voltage of level shift circuit
30	VCC	Power (short-circuited to pin 1)

*GND (lowest potential) is connected to the frame of pin center.
In this unit, the terminal with asterisk mark (*) is (open) terminal which is not connected to the outside.

IC804 VHiLA6541D/-1: Focus/Tracking/Spin/Sled Driver (LA6541D)

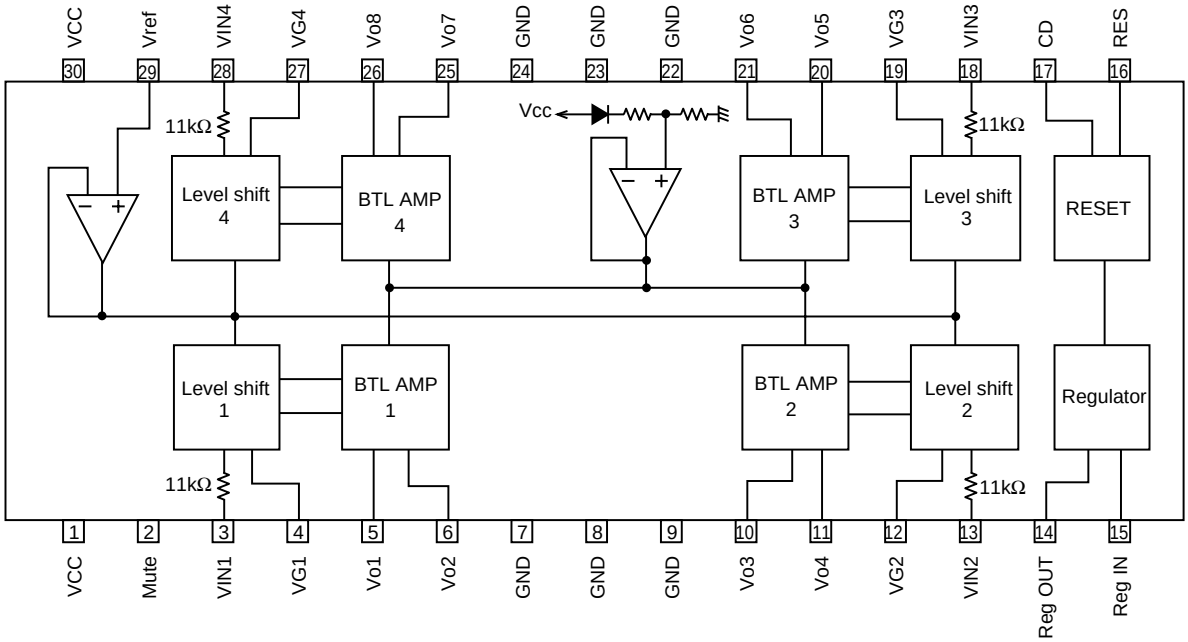
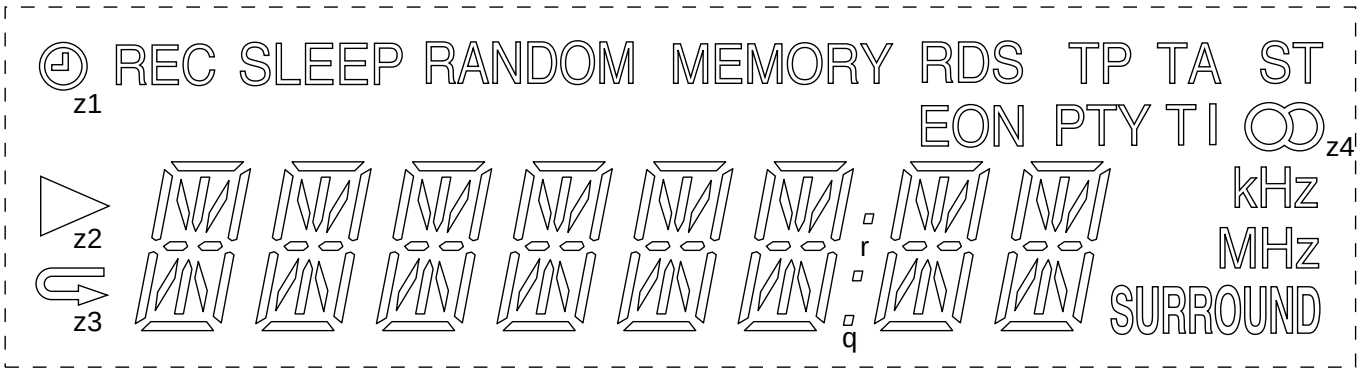


Figure 51 BLOCK DIAGRAM OF IC

XL-60H/70H

LCD701: RV-LX0007SJZZ LCD Display



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42

PinNo	com1	com2	com3	com4
1	com1			
2		com2		
3			com3	
4				com4
5	z1	b1	c1	z2
6	h1	j1	l1	k1
7	g1	n1	m1	d1
8	a1	p1	f1	e1
9	REC	b2	c2	z3
10	h2	j2	l2	k2
11	g2	n2	m2	d2
12	a2	p2	f2	e2
13	SLEEP	b3	c3	MHz
14	h3	j3	l3	k3
15	g3	n3	m3	d3
16	a3	p3	f3	e3
17	RANDOM	b4	c4	kHz
18	h4	j4	l4	k4
19	g4	n4	m4	d4
20	a4	p4	f4	e4
21	MEMORY	b5	c5	z4

PinNo	com1	com2	com3	com4
22	h5	j5	l5	k5
23	g5	n5	m5	d5
24	a5	p5	f5	e5
25	RDS	b6	c6	ST
26	h6	j6	l6	k6
27	g6	n6	m6	d6
28	a6	p6	f6	e6
29	r	b7	c7	q
30	h7	j7	l7	k7
31	g7	n7	m7	d7
32	a7	p7	f7	e7
33	TP	b8	c8	
34	h8	j8	l8	k8
35	g8	n8	m8	d8
36	a8	p8	f8	e8
37	EON	PTY	TI	TA
38				SRS(0)
39				com4
40			com3	
41		com2		
42	com1			

Figure 52 LCD SEGMENT

SHARP PARTS GUIDE

MODEL XL-60H XL-70H

XL-60H/XL-70H Micro Component System consisting of XL-60H/ XL-70H (main unit) and CP-XL60H/CP-XL70H (speaker system).

"HOW TO ORDER REPLACEMENT PARTS"

To have your order filled promptly and correctly, please furnish the following information.

1. MODEL NUMBER
2. REF. No.
3. PART NO.
4. DESCRIPTION

★ MARK: SPARE PARTS-DELIVERY SECTION

For U.S.A. only

Contact your nearest SHARP Parts Distributor to order.

For location of SHARP Parts Distributor,
Please call Toll-Free;
1-800-BE-SHARP

Explanation of capacitors/resistors parts codes

Capacitors

VCC ..... Ceramic type
VCK ..... Ceramic type
VCT ..... Semiconductor type
VC • • MF ..... Cylindrical type (without lead wire)
VC • • MN ..... Cylindrical type (without lead wire)
VC • • TV ..... Square type (without lead wire)
VC • • TQ ..... Square type (without lead wire)
VC • • CY ..... Square type (without lead wire)
VC • • CZ ..... Square type (without lead wire)
VC • • • • • • • • • J .. The 13th character represents capacity difference.
("J" ±5%, "K" ±10%, "M" ±20%, "N" ±30%,
"C" ±0.25 pF, "D" ±0.5 pF, "Z" +80-20%.)

If there are no indications for the electrolytic capacitors, error is ±20%.

Resistors

VRD ..... Carbon-film type
VRS ..... Carbon-film type
VRN ..... Metal-film type
VR • • MF ..... Cylindrical type (without lead wire)
VR • • MN ..... Cylindrical type (without lead wire)
VR • • TV ..... Square type (without lead wire)
VR • • TQ ..... Square type (without lead wire)
VR • • CY ..... Square type (without lead wire)
VR • • CZ ..... Square type (without lead wire)
VR • • • • • • • • • J .. The 13th character represents error.
("J" ±5%, "F" ±1%, "D" ±0.5%.)

If there are no indications for other parts, the resistors are ±5% carbon-film type.

NOTE:
Parts marked with "⚠" are important for maintaining the safety of the set.
Be sure to replace parts with specified ones for maintaining the safety and performance of the set.

NO.	PARTS CODE	★	PRICE RANK	DESCRIPTION

XL-60H/70H

INTEGRATED CIRCUITS

IC101	VHIBA3126N/-1	J	AF	Head Selector,BA3126N
IC102	VHIBA3311L/-1	J	AK	REC./P.B.Equalizer Amp., BA3311L
IC201	VHIKIA4558P-1	J	AC	Surround Control,KIA4558P
IC302	VHILC72131/-1	J	AP	PLL (Tuner),LC72131
IC303	VHILA1832S/-1	J	AN	FM IF Det./FM Mpx./AM IF, LA1832S
IC401	VHILC75342M-1	J	AN	Function/Volume Equalizer,LC75342M
IC521	VHILC72723M-1	J	AS	RDS Circuit,LC72723M
IC601	VHILA4451//-1	J	AN	Power Amp.,LA4451
IC701	RH-IX0026SJZZ	J	AX	System Control Microcomputer, IX0026SJ
IC702	VHITA7291S/-1	J	AH	Loading Motor Driver,TA7291S
IC801	VHITA2109F/-1	J	AL	Servo Pre Amp.,TA2109F
IC802	VHITC9462F/-1	J	AZ	Servo/Signal Control,TC9462F
IC804	VHILA6541D/-1	J	AW	Focus/Tracking/Spin/Sled Driver, LA6541D
IC805	VHITA7291S/-1	J	AH	CD Motor Driver,TA7291S

TRANSISTORS

Q101~106	VSKTC3199GR-1	J	AB	Silicon,NPN,KTC3199 GR
Q151	VS2SC2001-K-1	J	AD	Silicon,NPN,2SC2001 K
Q152	VSKTA1266GR-1	J	AB	Silicon,PNP,KTA1266 GR
Q153	VSKRC104M//-1	J	AC	Digital,NPN,KRC104 M
Q171	VSKRA102M//-1	J	AC	Digital,PNP,KRA102 M
Q172	VSKRC102M//-1	J	AC	Digital,NPN,KRC102 M
Q201	VS2SK246GR/-1	J	AB	FET,2SK246 GR
Q203	VSKRC107M//-1	J	AC	Digital,NPN,KRC107 M
Q301	VS2SC380-O/-1	J	AC	Silicon,NPN,2SC380 O
Q351	VSKRC104M//-1	J	AC	Digital,NPN,KRC104 M
Q360	VSKTA1266GR-1	J	AB	Silicon,PNP,KTA1266 GR
Q521	VSKTC3199GR-1	J	AB	Silicon,NPN,KTC3199 GR
Q601~603	VSKTC3199GR-1	J	AB	Silicon,NPN,KTC3199 GR
Q604,605	VS2SD2012Y/-1	J	AF	Silicon,NPN,2SD2012 Y
Q606	VSKTC3199GR-1	J	AB	Silicon,NPN,KTC3199 GR
Q607	VS2SD2012Y/-1	J	AF	Silicon,NPN,2SD2012 Y
Q608	VSKRA102M//-1	J	AC	Digital,PNP,KRA102 M
Q609	VSKRC107M//-1	J	AC	Digital,NPN,KRC107 M
Q681,682	VS2SD468-C/-1	J	AD	Silicon,NPN,2SD468 C
Q683	VSKTC3199GR-1	J	AB	Silicon,NPN,KTC3199 GR
Q701	VSKRC102M//-1	J	AC	Digital,NPN,KRC102 M
Q702,703	VSKTC3199GR-1	J	AB	Silicon,NPN,KTC3199 GR
Q706	VSKRC102M//-1	J	AC	Digital,NPN,KRC102 M
Q707,708	VSKTA1266GR-1	J	AB	Silicon,PNP,KTA1266 GR
Q709	VSKRC102M//-1	J	AC	Digital,NPN,KRC102 M
Q801	VSKTA1266GR-1	J	AB	Silicon,PNP,KTA1266 GR
Q861	VS2SB562-C/-1	J	AD	Silicon,PNP,2SB562 C
Q901	VSKRC102M//-1	J	AC	Digital,NPN,KRC102 M
Q902	VS2SB562-C/-1	J	AD	Silicon,PNP,2SB562 C
Q903	VSKRC107M//-1	J	AC	Digital,NPN,KRC107 M
Q904	VSKRC102M//-1	J	AC	Digital,NPN,KRC102 M
Q905	VS2SB562-C/-1	J	AD	Silicon,PNP,2SB562 C
Q906	VSKRA102M//-1	J	AC	Digital,PNP,KRA102 M

DIODES

D104	VHD1N4148//-1	J	AA	Silicon,1N4148
D201	VHD1N4148//-1	J	AA	Silicon,1N4148
D301~304	VHD1N4148//-1	J	AA	Silicon,1N4148
D401~403	VHD1N4004//-1	J	AB	Silicon,1N4004
D521,522	VHD1N4148//-1	J	AA	Silicon,1N4148
D601~604	VHD1N4148//-1	J	AA	Silicon,1N4148
D611~614	VHD1N4004//-1	J	AB	Silicon,1N4004
⚠ D651~654	VHD1N5402M/-1	J	AE	Silicon,1N5402M
D656~659	VHD1N4004//-1	J	AB	Silicon,1N4004
⚠ D681~684	VHD1N4004//-1	J	AB	Silicon,1N4004
D685	VHD1N4004//-1	J	AB	Silicon,1N4004
D701~709	VHPMPG3372X-V	J	AD	LED,Green,MPG3372X
D720~723	VHD1N4148//-1	J	AA	Silicon,1N4148
D730	VHPHY2043//-1	J	AD	LED,Orange,HY2043
D732	VHPHY2043//-1	J	AD	LED,Orange,HY2043
D736,737	VHPHY2043//-1	J	AD	LED,Orange,HY2043
D901~904	VHD1N4148//-1	J	AA	Silicon,1N4148
ZD351	VHEMTZJ5R1B-1	J	AC	Zener,5.1V,MTZJ5.1B
ZD601	VHEMTZJ130A-1	J	AC	Zener,13V,MTZJ13A
ZD602	VHEMTZJ7R5C-1	J	AC	Zener,7.5V,MTZJ7.5C
ZD681	VHEMTZJ6R8A-1	J	AA	Zener,6.8V,MTZJ6.8A
ZD682	VHEMTZJ5R6B-1	J	AD	Zener,5.6V,MTZJ5.6B
ZD701	VHEMTZJ3R3B-1	J	AA	Zener,3.3V,MTZJ3.3B

FILTERS

CF301,302	RFILF0072AFZZ	J	AG	FM IF
CF351	RFILF0003AWZZ	J	AK	FM IF
L354	RFILL0001AWZZ	J	AE	Low Pass Filter
⚠ LF651	RCILZ0002SJZZ	J	AG	Line Filter

TRANSFORMERS

CF352	RFILA0003SJZZ	J	AF	AM IF
T351	RCILI0004SJZZ	J	AF	AM IF
⚠ T651	RTRNP0043SJZZ	J	BA	Power,Main
⚠ T681	RTRNP0025SJZZ	J	AU	Power,Sub

COILS

L151	VP-MK331K0000	J	AB	330 µH,Choke
L341	RBLN-0001AWZZ	J	AD	Balun
L342	VP-DH2R2K0000	J	AB	2.2 mmH,Peaking
L351,352	VP-DH101K0000	J	AB	100 µH,Choke
L353	VP-DH102K0000	J	AB	1 mH,Choke
L521	VP-DH2R2K0000	J	AB	2.2 mmH,Peaking
L601,602	RCILZ0001SJZZ	J	AD	0.3 mH,Coil
L603	VP-DH100K0000	J	AB	10 µH,Choke
L701	VP-DH101K0000	J	AB	100 µH,Choke
L801	VP-DH100K0000	J	AB	10 µH,Choke
L802	VP-XHR82K0000	J	AC	0.82 µH
L803	VP-DH100K0000	J	AB	10 µH,Choke
L804	VP-DH2R2K0000	J	AB	2.2 mmH,Peaking
T302	RCILA0007SJZZ	J	AG	AM Antenna
T306	RCILB0009SJZZ	J	AG	AM Oscillation

VARIABLE RESISTOR

VR351	RVR-M0999AFZZ	J	AB	10 kohm (B),Semi-VR [FM Mute Level]

VARIABLE CAPACITOR

VD301	VHCSVC348S/-1	J	AK	Variable Capacitance,SVC348S

VIBRATORS

X351	RCRM-0007SJZZ	J	AG	Ceramic,456 kHz
X352	RCRSP0006SJZZ	J	AF	Crystal,4.5 MHz
X521	RCRSP0005SJZZ	J	AF	Crystal,456 kHz
X701	RCRM-0008SJZZ	J	AG	Ceramic,8 MHz
X702	RCRSP0011AWZZ	J	AC	Crystal,32.768 kHz
X801	RCRSP0002SJZZ	J	AL	Crystal,16.93 MHz

CAPACITORS

C101,102	VCKYTV1HB102K	J	AA	0.001 µF,50V
C103,104	VCKYTV1HB331K	J	AA	330 pF,50V
C105,106	VCKYTV1HB271K	J	AA	270 pF,50V
C107,108	RC-GZA476AF1C	J	AB	47 µF,16V,Electrolytic
C109,110	VCQYKA1HM153J	J	AB	0.015 µF,50V,Mylar
C111,112	RC-GZA106AF1C	J	AB	10 µF,16V,Electrolytic
C113,114	RC-GZA475AF1E	J	AB	4.7 µF,25V,Electrolytic
C115,116	VCKYTV1HB222K	J	AA	0.0022 µF,50V
C117	RC-GZA106AF1C	J	AB	10 µF,16V,Electrolytic
C121,122	VCCSTV1HL820J	J	AA	82 pF,50V
C123	RC-GZA225AF1H	J	AB	2.2 µF,50V,Electrolytic
C125	RC-GZA107AF1E	J	AB	100 µF,25V,Electrolytic
C126	RC-GZA226AF1C	J	AB	22 µF,16V,Electrolytic
C129,130	RC-GZA475AF1E	J	AB	4.7 µF,25V,Electrolytic
C131	VCKYBT1HB821K	J	AA	820 pF,50V
C153	VCQPKA2AA392J	J	AB	0.0039 µF,100V,Polypropylene
C154	VCQYKA1HM273J	J	AB	0.027 µF,50V,Mylar
C155	RC-GZA107AF1C	J	AB	100 µF,16V,Electrolytic
C201,202	VCKYTV1HB562K	J	AA	0.0056 µF,50V
C203,204	RC-GZA105AF1H	J	AB	1 µF,50V,Electrolytic
C208	RC-GZA107AF1C	J	AB	100 µF,16V,Electrolytic

NO.	PARTS CODE	★	PRICE RANK	DESCRIPTION
C209	RC-GZA476AF1C	J	AB	47 µF,16V,Electrolytic
C211,212	VCKYTV1HB332K	J	AA	0.0033 µF,50V
C213,214	RC-GZA475AF1H	J	AB	4.7 µF,50V,Electrolytic
C215,216	RC-GZA105AF1H	J	AB	1 µF,50V,Electrolytic
C301,302	VCKYTV1HB102K	J	AA	0.001 µF,50V
C329	VCKYTV1EF223Z	J	AA	0.022 µF,25V
C330	VCCCPA1HH120J	J	AA	12 pF (CH),50V
C331	VCKYTV1EF473Z	J	AB	0.047 µF,25V
C332	VCKYPA1HF223Z	J	AB	0.022 µF,50V
C334	VCCUPA1HJ270J	J	AA	27 pF (UJ),50V
C335	VCKYTV1HB561K	J	AA	560 pF,50V
C337	VCKYPA1HF223Z	J	AB	0.022 µF,50V
C340	VCKYTV1HB102K	J	AA	0.001 µF,50V
C341	VCKYTV1EF223Z	J	AA	0.022 µF,25V
C343,344	VCCSTV1HL330J	J	AA	33 pF,50V
C345~347	VCKYTV1EF223Z	J	AA	0.022 µF,25V
C348	RC-GZA107AF1C	J	AB	100 µF,16V,Electrolytic
C349	VCKYTV1HB102K	J	AA	0.001 µF,50V
C350,351	VCKYTV1EF223Z	J	AA	0.022 µF,25V
C352	RC-GZA106AF1C	J	AB	10 µF,16V,Electrolytic
C353,354	VCKYTV1EF223Z	J	AA	0.022 µF,25V
C355	VCCSTV1HL220J	J	AA	22 pF,50V
C356	VCKYTV1HB102K	J	AA	0.001 µF,50V
C357	RC-GZA225AF1H	J	AB	2.2 µF,50V,Electrolytic
C358	RC-GZA105AF1H	J	AB	1 µF,50V,Electrolytic
C360,361	VCKYTV1EF223Z	J	AA	0.022 µF,25V
C362	RC-GZA335AF1H	J	AB	3.3 µF,50V,Electrolytic
C363	VCKYTV1EF223Z	J	AA	0.022 µF,25V
C364	RC-GZA106AF1C	J	AB	10 µF,16V,Electrolytic
C365	VCKYTV1EF223Z	J	AA	0.022 µF,25V
C366	VCKYTV1HB102K	J	AA	0.001 µF,50V
C367,368	RC-GZA105AF1H	J	AB	1 µF,50V,Electrolytic
C369	VCCSTV1HL560J	J	AA	56 pF,50V
C370~372	RC-GZA105AF1H	J	AB	1 µF,50V,Electrolytic
C373,374	VCTYPA1CX153K	J	AA	0.015 µF,16V
C376	VCKYTV1HB102K	J	AA	0.001 µF,50V
C380	RC-GZA106AF1C	J	AB	10 µF,16V,Electrolytic
C381	VCCCTV1HH120J	J	AA	12 pF (CH),50V
C382	VCCCTV1HH150J	J	AA	15 pF (CH),50V
C383	VCKYTV1EF223Z	J	AA	0.022 µF,25V
C384	VCKYTV1HB102K	J	AA	0.001 µF,50V
C385	VCTYPA1CX103K	J	AA	0.01 µF,16V
C386	VCKYPA1HB331K	J	AA	330 pF,50V
C387	VCKYTV1EF223Z	J	AA	0.022 µF,25V
C391	RC-GZA476AF1C	J	AB	47 µF,16V,Electrolytic
C392	VCKYTV1HB102K	J	AA	0.001 µF,50V
C393	RC-GZA105AF1H	J	AB	1 µF,50V,Electrolytic
C394	RC-GZA476AF1C	J	AB	47 µF,16V,Electrolytic
C395	VCKYTV1EF223Z	J	AA	0.022 µF,25V
C396	RC-GZA107AF1A	J	AB	100 µF,10V,Electrolytic
C397	VCKYTV1EF223Z	J	AA	0.022 µF,25V
C398	RC-GZA107AF1A	J	AB	100 µF,10V,Electrolytic
C399	VCKYPA1HF223Z	J	AB	0.022 µF,50V
C401~408	RC-GZA106AF1C	J	AB	10 µF,16V,Electrolytic
C411,412	VCKYTV1HB331K	J	AA	330 pF,50V
C415,416	RC-GZA106AF1C	J	AB	10 µF,16V,Electrolytic
C417,418	RC-GZA225AF1H	J	AB	2.2 µF,50V,Electrolytic
C419,420	VCKYTV1HB272K	J	AA	0.0027 µF,50V
C421~424	RC-QZA104AFYJ	J	AC	0.1 µF,50V,Mylar
C425,426	RC-GZA106AF1C	J	AB	10 µF,16V,Electrolytic
C429	RC-GZA336AF1C	J	AB	33 µF,16V,Electrolytic
C430	RC-GZA107AF1C	J	AB	100 µF,16V,Electrolytic
C521	RC-GZA106AF1C	J	AB	10 µF,16V,Electrolytic
C522	VCKYTV1HB331K	J	AA	330 pF,50V
C523	VCKYTV1EF104Z	J	AA	0.1 µF,25V
C524	VCKYTV1HB561K	J	AA	560 pF,50V
C525,526	VCCCTV1HH220J	J	AA	22 pF (CH),50V
C527	VCKYTV1EF104Z	J	AA	0.1 µF,25V
C535	RC-GZA476AF1C	J	AB	47 µF,16V,Electrolytic
C536	VCKYTV1EF223Z	J	AA	0.022 µF,25V
C537	VCKYPA1HF223Z	J	AB	0.022 µF,50V
C601	RC-GZA336AF1C	J	AB	33 µF,16V,Electrolytic
C602	RC-GZA105AF1H	J	AB	1 µF,50V,Electrolytic
C603,604	VCKYPA1HB101K	J	AA	100 pF,50V
C605,606	RC-GZA475AF1E	J	AB	4.7 µF,25V,Electrolytic
C607,608	RC-GZA227AF1E	J	AB	220 µF,25V,Electrolytic
C609,610	RC-GZA476AF1H	J	AB	47 µF,50V,Electrolytic
C611,612	RC-QZA224AFYJ	J	AB	0.22 µF,50V,Mylar
C613,614	RC-GZV108AF1V	J	AD	1000 µF,35V,Electrolytic
C615	VCKYPA1HF223Z	J	AB	0.022 µF,50V
C616	RC-GZW228AF1H	J	AH	2200 µF,50V,Electrolytic
C617,618	VCKYPA1HB222K	J	AA	0.0022 µF,50V
C620	RC-GZV477AF1E	J	AC	470 µF,25V,Electrolytic
C621	RC-GZA107AF1E	J	AB	100 µF,25V,Electrolytic
C622	VCKYPA1HF223Z	J	AB	0.022 µF,50V
C624	VCKYPA1HF223Z	J	AB	0.022 µF,50V
C625	RC-GZA106AF1C	J	AB	10 µF,16V,Electrolytic
C626	RC-GZA476AF1C	J	AB	47 µF,16V,Electrolytic
C627	VCKYTV1EF223Z	J	AA	0.022 µF,25V
C629	RC-GZV227AF1H	J	AC	220 µF,50V,Electrolytic
C630	RC-GZW478AF1E	J	AG	4700 µF,25V,Electrolytic
C632,633	VCKYPA1HF223Z	J	AB	0.022 µF,50V
C636,637	VCKYPA1HF223Z	J	AB	0.022 µF,50V
C639,640	VCKYPA1HB471K	J	AA	470 pF,50V
C643,644	RC-QZA224AFYJ	J	AB	0.22 µF,50V,Mylar
C647	VCKYBT1HB331K	J	AA	330 pF,50V
C648	VCKYPA1HB122K	J	AA	0.0012 µF,50V
⚠ C651	VCFYFA1HA104J	J	AC	0.1 µF,50V,Thin Film
⚠ C654	VCFYFA1HA104J	J	AC	0.1 µF,50V,Thin Film
⚠ C656~659	VCFYFA1HA104J	J	AC	0.1 µF,50V,Thin Film
C660	VCKYPA1HF102Z	J		0.001 µF,50V
C661~663	VCKYPA1HB821K	J	AA	820 pF,50V
C683	RC-GZV228AF1C	J	AG	2200 µF,16V,Electrolytic
C684	VCFYFA1HA473J	J	AB	0.047 µF,50V,Thin Film
C685	RC-GZA476AF1C	J	AB	47 µF,16V,Electrolytic
C686	VCKYPA1HF223Z	J	AB	0.022 µF,50V
C688	VCKYPA1HF223Z	J	AB	0.022 µF,50V
C689	RC-GZA476AF1C	J	AB	47 µF,16V,Electrolytic
C693,694	VCKYPA1HB331K	J	AA	330 pF,50V
C695,696	VCKYPA1HB102K	J	AA	0.001 µF,50V
C701,702	VCCCTV1HH220J	J	AA	22 pF (CH),50V
C703,704	VCKYTV1EF223Z	J	AA	0.022 µF,25V
C710	VCKYTV1EB103K	J	AA	0.01 µF,25V
C711	RC-GZA335AF1H	J	AB	3.3 µF,50V,Electrolytic
C712	VCKYTV1EB103K	J	AA	0.01 µF,25V
C713	RC-GZA106AF1C	J	AB	10 µF,16V,Electrolytic
C714	VCKYTV1HB561K	J	AA	560 pF,50V
C715	RC-GZA107AF1A	J	AB	100 µF,10V,Electrolytic
C771	RC-GZA476AF1C	J	AB	47 µF,16V,Electrolytic
C772	VCKYTV1EB104K	J	AA	0.1 µF,25V
C773	RC-GZA476AF1C	J	AB	47 µF,16V,Electrolytic
C801	VCCSPA1HL101J	J	AA	100 pF,50V
C802	VCKYTV1EB153K	J	AB	0.015 µF,25V
C803	RC-GZA476AF1A	J	AB	47 µF,10V,Electrolytic
C804	VCKYTV1EB103K	J	AA	0.01 µF,25V
C805	VCKYTV1HB272K	J	AA	0.0027 µF,50V
C806	VCKYTV1HB472K	J	AA	0.0047 µF,50V
C807	VCKYTV1EB333K	J	AB	0.033 µF,25V
C809	VCKYTV1HB472K	J	AA	0.0047 µF,50V
C810	VCKYTV1HB102K	J	AA	0.001 µF,50V
C811	RC-GZA476AF1A	J	AB	47 µF,10V,Electrolytic
C812	VCKYTV1EF103Z	J	AA	0.01 µF,25V
C813	RC-GZA107AF1A	J	AB	100 µF,10V,Electrolytic
C817~819	VCKYTV1EB104K	J	AA	0.1 µF,25V
C820	VCKYTV1EF103Z	J	AA	0.01 µF,25V
C821	VCKYTV1EB104K	J	AA	0.1 µF,25V
C822	RC-GZA227AF1A	J	AB	220 µF,10V,Electrolytic
C823	VCKYTV1EF103Z	J	AA	0.01 µF,25V
C824,825	VCKYTV1EB563K	J	AA	0.056 µF,25V
C826,827	VCCCTV1HH150J	J	AA	15 pF (CH),50V
C828,829	RC-GZA107AF1A	J	AB	100 µF,10V,Electrolytic
C830	VCKYTV1EB563K	J	AA	0.056 µF,25V
C831,832	RC-GZA106AF1C	J	AB	10 µF,16V,Electrolytic
C833,834	VCKYTV1HB471K	J	AA	470 pF,50V
C835	VCKYTV1EB563K	J	AA	0.056 µF,25V
C836	RC-GZA107AF1A	J	AB	100 µF,10V,Electrolytic
C837	VCKYTV1HB471K	J	AA	470 pF,50V
C838	RC-GZA476AF1A	J	AB	47 µF,10V,Electrolytic
C839	VCCSTV1HL2R0C	J	AA	2 pF,50V
C840,841	RC-GZA107AF1A	J	AB	100 µF,10V,Electrolytic
C842	RC-GZA476AF1A	J	AB	47 µF,10V,Electrolytic
C843	VCKYTV1EF104Z	J	AA	0.1 µF,25V
C844	VCKYTV1HB682K	J	AA	0.0068 µF,50V
C845	RC-GZA107AF1A	J	AB	100 µF,10V,Electrolytic
C846,847	VCKYTV1EF104Z	J	AA	0.1 µF,25V
C848	VCCSTV1HL390J	J	AA	39 pF,50V
C849	VCKYTV1EB563K	J	AA	0.056 µF,25V
C850	RC-GZA227AF1A	J	AB	220 µF,10V,Electrolytic
C851	RC-GZA107AF1A	J	AB	100 µF,10V,Electrolytic
C852	VCQYKA1HM222J	J	AB	0.0022 µF,50V,Mylar
C855	RC-GZA107AF1A	J	AB	100 µF,10V,Electrolytic
C857	RC-GZA476AF1C	J	AB	47 µF,16V,Electrolytic
C859	RC-GZA477AF1A	J	AC	470 µF,10V,Electrolytic
C860	VCKYTV1EF104Z	J	AA	0.1 µF,25V

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C861	VCKYPA1HB102K	J	AA	0.001 µF,50V
C862	VCKYPA1HB222K	J	AA	0.0022 µF,50V
C863	VCKYTV1HB471K	J	AA	470 pF,50V
C871	RC-GZA476AF1C	J	AB	47 µF,16V,Electrolytic
C872	VCKYTV1EB104K	J	AA	0.1 µF,25V
C887	VCKYTV1HB272K	J	AA	0.0027 µF,50V
C901	VCKYTV1HB102K	J	AA	0.001 µF,50V
C902	RC-GZA335AF1H	J	AB	3.3 µF,50V,Electrolytic
C903	RC-GZA107AF1E	J	AB	100 µF,25V,Electrolytic
C904,905	VCKYTV1HF223Z	J	AA	0.022 µF,50V

RESISTORS

	VRS-TV2AB000J	J	AA	0 ohm,Jumper,1.25×2mm,Green
J920	VRS-TV2AB121J	J	AA	120 ohms,1/10W
J923	VRS-TV2AB121J	J	AA	120 ohms,1/10W
R7A0	VRS-TV2AB102J	J	AA	1 kohm,1/10W
R7A1	VRS-TV2AB102J	J	AA	1 kohm,1/10W
R7A2	VRS-TV2AB104J	J	AA	100 kohm,1/10W
R7A3	VRD-ST2EE101J	J	AA	100 ohm,1/4W
R7A4	VRS-TV2AB121J	J	AA	120 ohms,1/10W
R7A5	VRS-TV2AB103J	J	AA	10 kohm,1/10W
R7A6	VRS-TV2AB102J	J	AA	1 kohm,1/10W
R7A7	VRS-TV2AB102J	J	AA	1 kohm,1/10W
R7A8	VRS-TV2AB820J	J	AA	82 ohms,1/10W
R7A9	VRD-ST2CD332J	J	AA	3.3 kohms,1/6W
R7B0	VRS-TV2AB103J	J	AA	10 kohm,1/10W
R7B2	VRS-TV2AB473J	J	AA	47 kohms,1/10W
R7B3	VRS-TV2AB222J	J	AA	2.2 kohms,1/10W
R7D1	VRS-TV2AB820J	J	AA	82 ohms,1/10W
R7D2	VRS-TV2AB820J	J	AA	82 ohms,1/10W
R7D3	VRS-TV2AB820J	J	AA	82 ohms,1/10W
R7D4	VRS-TV2AB820J	J	AA	82 ohms,1/10W
R7D5	VRS-TV2AB820J	J	AA	82 ohms,1/10W
R7D6	VRS-TV2AB820J	J	AA	82 ohms,1/10W
R7D8	VRS-TV2AB820J	J	AA	82 ohms,1/10W
R7D9	VRS-TV2AB820J	J	AA	82 ohms,1/10W
R7E1	VRS-TV2AB820J	J	AA	82 ohms,1/10W
R80A	VRS-TV2AB823J	J	AA	82 kohms,1/10W
R80B	VRS-TV2AB683J	J	AA	68 kohms,1/10W
R80C	VRS-TV2AB823J	J	AA	82 kohms,1/10W
R80E	VRD-ST2CD823J	J	AA	82 kohms,1/6W
R80F	VRS-TV2AB823J	J	AA	82 kohms,1/10W
R80G	VRD-ST2CD683J	J	AA	68 kohms,1/6W
R101,102	VRD-ST2CD102J	J	AA	1 kohm,1/6W
R103,104	VRS-TV2AB121J	J	AA	120 ohms,1/10W
R105	VRS-TV2AB154J	J	AA	150 kohms,1/10W
R106	VRD-ST2CD154J	J	AA	150 kohms,1/6W
R107	VRD-ST2CD103J	J	AA	10 kohm,1/6W
R108	VRS-TV2AB103J	J	AA	10 kohm,1/10W
R109,110	VRS-TV2AB392J	J	AA	3.9 kohms,1/10W
R111,112	VRD-ST2CD222J	J	AA	2.2 kohms,1/6W
R113,114	VRS-TV2AB332J	J	AA	3.3 kohms,1/10W
R115,116	VRS-TV2AB153J	J	AA	15 kohms,1/10W
R117,118	VRS-TV2AB223J	J	AA	22 kohms,1/10W
R119,120	VRS-TV2AB101J	J	AA	100 ohm,1/10W
R121~124	VRS-TV2AB472J	J	AA	4.7 kohms,1/10W
R125	VRS-TV2AB104J	J	AA	100 kohm,1/10W
R126	VRS-TV2AB562J	J	AA	5.6 kohms,1/10W
R131	VRD-ST2CD472J	J	AA	4.7 kohms,1/6W
R132	VRS-TV2AB472J	J	AA	4.7 kohms,1/10W
R133	VRS-TV2AB102J	J	AA	1 kohm,1/10W
R134	VRS-TV2AB104J	J	AA	100 kohm,1/10W
R138	VRD-ST2EE331J	J	AA	330 ohms,1/4W
R139	VRD-ST2CD272J	J	AA	2.7 kohms,1/6W
R140	VRS-TV2AB103J	J	AA	10 kohm,1/10W
R141	VRD-ST2CD331J	J	AA	330 ohms,1/6W
R151	VRS-TV2AB473J	J	AA	47 kohms,1/10W
R152	VRS-TV2AB104J	J	AA	100 kohm,1/10W
R153,154	VRS-TV2AB103J	J	AA	10 kohm,1/10W
R155	VRD-ST2EE560J	J	AA	56 ohms,1/4W
R156,157	VRD-ST2EE151J	J	AA	150 ohms,1/4W
R201	VRD-ST2CD822J	J	AA	8.2 kohms,1/6W
R202	VRS-TV2AB822J	J	AA	8.2 kohms,1/10W
R203,204	VRS-TV2AB104J	J	AA	100 kohm,1/10W
R205,206	VRS-TV2AB103J	J	AA	10 kohm,1/10W
R207	VRD-ST2CD473J	J	AA	47 kohms,1/6W
R208	VRD-ST2EE331J	J	AA	330 ohms,1/4W
R209	VRS-TV2AB103J	J	AA	10 kohm,1/10W
R210	VRD-ST2CD103J	J	AA	10 kohm,1/6W
R211	VRS-TV2AB272J	J	AA	2.7 kohms,1/10W
R212	VRD-ST2CD272J	J	AA	2.7 kohms,1/6W

NO.	PARTS CODE	★	PRICE RANK	DESCRIPTION
R213~216	VRS-TV2AB123J	J	AA	12 kohms,1/10W
R217	VRD-ST2CD123J	J	AA	12 kohms,1/6W
R218	VRS-TV2AB122J	J	AA	1.2 kohms,1/10W
R323	VRS-TV2AB683J	J	AA	68 kohms,1/10W
R336	VRD-ST2CD103J	J	AA	10 kohm,1/6W
R343	VRD-ST2CD181J	J	AA	180 ohms,1/6W
R344	VRS-TV2AB681J	J	AA	680 ohms,1/10W
R345	VRS-TV2AB472J	J	AA	4.7 kohms,1/10W
R346	VRD-ST2CD331J	J	AA	330 ohms,1/6W
R347	VRS-TV2AB682J	J	AA	6.8 kohms,1/10W
R348	VRS-TV2AB681J	J	AA	680 ohms,1/10W
R349	VRS-TV2AB330J	J	AA	33 ohms,1/10W
R350	VRS-TV2AB272J	J	AA	2.7 kohms,1/10W
R351	VRS-TV2AB562J	J	AA	5.6 kohms,1/10W
R352	VRS-TV2AB102J	J	AA	1 kohm,1/10W
R353	VRS-TV2AB271J	J	AA	270 ohms,1/10W
R355	VRS-TV2AB332J	J	AA	3.3 kohms,1/10W
R356	VRS-TV2AB102J	J	AA	1 kohm,1/10W
R357	VRS-TV2AB474J	J	AA	470 kohms,1/10W
R358	VRS-TV2AB822J	J	AA	8.2 kohms,1/10W
R359	VRS-TV2AB182J	J	AA	1.8 kohms,1/10W
R360	VRS-TV2AB472J	J	AA	4.7 kohms,1/10W
R361,362	VRS-TV2AB123J	J	AA	12 kohms,1/10W
R363	VRD-ST2CD682J	J	AA	6.8 kohms,1/6W
R364	VRS-TV2AB682J	J	AA	6.8 kohms,1/10W
R365	VRS-TV2AB103J	J	AA	10 kohm,1/10W
R366	VRS-TV2AB222J	J	AA	2.2 kohms,1/10W
R369A	VRS-TV2AB680J	J	AA	68 ohms,1/10W
R369B	VRS-TV2AB820J	J	AA	82 ohms,1/10W
R371~374	VRS-TV2AB102J	J	AA	1 kohm,1/10W
R376	VRD-ST2CD103J	J	AA	10 kohm,1/6W
R377	VRD-ST2CD562J	J	AA	5.6 kohms,1/6W
R379	VRS-TV2AB222J	J	AA	2.2 kohms,1/10W
R380	VRD-ST2CD152J	J	AA	1.5 kohms,1/6W
R381	VRS-TV2AB103J	J	AA	10 kohm,1/10W
R382	VRD-ST2EE331J	J	AA	330 ohms,1/4W
R383	VRS-TV2AB562J	J	AA	5.6 kohms,1/10W
R384	VRD-ST2CD682J	J	AA	6.8 kohms,1/6W
R385	VRD-ST2CD562J	J	AA	5.6 kohms,1/6W
R386	VRD-ST2EE331J	J	AA	330 ohms,1/4W
R387	VRD-ST2CD562J	J	AA	5.6 kohms,1/6W
R391,392	VRD-ST2EE391J	J	AA	390 ohms,1/4W
R393	VRS-TV2AB102J	J	AA	1 kohm,1/10W
R395	VRD-ST2CD473J	J	AA	47 kohms,1/6W
R405,406	VRS-TV2AB273J	J	AA	27 kohms,1/10W
R407,408	VRS-TV2AB152J	J	AA	1.5 kohms,1/10W
R415~425	VRS-TV2AB102J	J	AA	1 kohm,1/10W
R435,436	VRS-TV2AB103J	J	AA	10 kohm,1/10W
R437,438	VRS-TV2AB682J	J	AA	6.8 kohms,1/10W
R439,440	VRS-TV2AB392J	J	AA	3.9 kohms,1/10W
R521	VRD-ST2CD473J	J	AA	47 kohms,1/6W
R528,529	VRD-ST2CD102J	J	AA	1 kohm,1/6W
R532	VRS-TV2AB103J	J	AA	10 kohm,1/10W
R533,534	VRD-ST2CD563J	J	AA	56 kohms,1/6W
R601,602	VRD-ST2CD102J	J	AA	1 kohm,1/6W
R603,604	VRD-ST2CD103J	J	AA	10 kohm,1/6W
R605,606	VRD-ST2CD820J	J	AA	82 ohms,1/6W
R607	VRD-ST2CD682J	J	AA	6.8 kohms,1/6W
R608	VRD-ST2CD102J	J	AA	1 kohm,1/6W
R609,610	VRD-ST2EE3R3J	J	AA	3.3 ohms,1/4W
R613,614	VRD-RT2HD271J	J	AA	270 ohms,1/2W
R615,616	VRD-ST2CD472J	J	AA	4.7 kohms,1/6W
R617	VRS-TV2AB333J	J	AA	33 kohms,1/10W
R619,620	VRD-ST2EE470J	J	AA	47 ohms,1/4W
R621	VRS-TV2AB223J	J	AA	22 kohms,1/10W
R623	VRS-TV2AB223J	J	AA	22 kohms,1/10W
R624	VRD-ST2EE102J	J	AA	1 kohm,1/4W
R625	VRS-TV2AB103J	J	AA	10 kohm,1/10W
R627	VRS-TV2AB103J	J	AA	10 kohm,1/10W
R628	VRD-ST2EE101J	J	AA	100 ohm,1/4W
R629	VRD-ST2EE821J	J	AA	820 ohms,1/4W
R631,632	VRD-ST2EE6R8J	J	AA	6.8 ohms,1/4W
R633	VRD-ST2EE100J	J	AA	10 ohm,1/4W
R634	VRD-ST2EE332J	J	AA	3.3 kohms,1/4W
R651	VRS-VV3LA681J	J	AC	680 kohms,3W,Metal Oxide Film
R661,662	VRD-ST2EE331J	J	AA	330 ohms,1/4W
R681	VRD-ST2CD470J	J	AA	47 ohms,1/6W
R682	VRD-ST2CD122J	J	AA	1.2 kohms,1/6W
R683	VRD-ST2CD470J	J	AA	47 ohms,1/6W
R684	VRD-ST2CD122J	J	AA	1.2 kohms,1/6W
R685	VRD-ST2CD103J	J	AA	10 kohm,1/6W
R686	VRD-ST2CD473J	J	AA	47 kohms,1/6W

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R701	VRD-ST2CD103J	J	AA	10 kohm,1/6W
R702	VRS-TV2AB103J	J	AA	10 kohm,1/10W
R705	VRD-ST2CD562J	J	AA	5.6 kohms,1/6W
R706	VRD-ST2CD392J	J	AA	3.9 kohms,1/6W
R707	VRD-ST2CD272J	J	AA	2.7 kohms,1/6W
R708	VRS-TV2AB222J	J	AA	2.2 kohms,1/10W
R709	VRD-ST2CD152J	J	AA	1.5 kohms,1/6W
R710,711	VRS-TV2AB122J	J	AA	1.2 kohms,1/10W
R714	VRD-ST2CD562J	J	AA	5.6 kohms,1/6W
R715	VRD-ST2CD392J	J	AA	3.9 kohms,1/6W
R716	VRD-ST2CD272J	J	AA	2.7 kohms,1/6W
R717	VRD-ST2CD222J	J	AA	2.2 kohms,1/6W
R718	VRD-ST2CD152J	J	AA	1.5 kohms,1/6W
R719,720	VRD-ST2CD122J	J	AA	1.2 kohms,1/6W
R721,722	VRS-TV2AB103J	J	AA	10 kohm,1/10W
R723	VRS-TV2AB473J	J	AA	47 kohms,1/10W
R724	VRS-TV2AB122J	J	AA	1.2 kohms,1/10W
R725	VRS-TV2AB103J	J	AA	10 kohm,1/10W
R727	VRS-TV2AB473J	J	AA	47 kohms,1/10W
R728	VRS-TV2AB102J	J	AA	1 kohm,1/10W
R729	VRS-TV2AB473J	J	AA	47 kohms,1/10W
R730~735	VRS-TV2AB102J	J	AA	1 kohm,1/10W
R737~746	VRS-TV2AB102J	J	AA	1 kohm,1/10W
R747~749	VRD-ST2CD102J	J	AA	1 kohm,1/6W
R750,751	VRS-TV2AB102J	J	AA	1 kohm,1/10W
R752	VRD-ST2CD102J	J	AA	1 kohm,1/6W
R753,754	VRS-TV2AB102J	J	AA	1 kohm,1/10W
R755	VRD-ST2CD102J	J	AA	1 kohm,1/6W
R757~777	VRS-TV2AB102J	J	AA	1 kohm,1/10W
R778~781	VRS-TV2AB473J	J	AA	47 kohms,1/10W
R782,783	VRS-TV2AB333J	J	AA	33 kohms,1/10W
R784	VRD-ST2CD473J	J	AA	47 kohms,1/6W
R785	VRS-TV2AB102J	J	AA	1 kohm,1/10W
R786	VRD-ST2CD473J	J	AA	47 kohms,1/6W
R787	VRD-RT2HD2R2J	J	AA	2.2 ohms,1/2W
R789	VRD-ST2CD473J	J	AA	47 kohms,1/6W
R792	VRD-ST2CD473J	J	AA	47 kohms,1/6W
R793	VRD-ST2CD222J	J	AA	2.2 kohms,1/6W
R794~797	VRD-ST2CD181J	J	AA	180 ohms,1/6W
R798	VRD-ST2CD822J	J	AA	8.2 kohms,1/6W
R799	VRD-ST2CD222J	J	AA	2.2 kohms,1/6W
R801	VRD-ST2CD103J	J	AA	10 kohm,1/6W
R802	VRS-TV2AB473J	J	AA	47 kohms,1/10W
R804	VRS-TV2AB104J	J	AA	100 kohm,1/10W
R806	VRS-TV2AB153J	J	AA	15 kohms,1/10W
R807	VRS-TV2AB103J	J	AA	10 kohm,1/10W
R808	VRS-TV2AB332J	J	AA	3.3 kohms,1/10W
R809	VRS-TV2AB103J	J	AA	10 kohm,1/10W
R810	VRS-TV2AB332J	J	AA	3.3 kohms,1/10W
R811	VRS-TV2AB222J	J	AA	2.2 kohms,1/10W
R812	VRS-TV2AB332J	J	AA	3.3 kohms,1/10W
R813	VRD-ST2EE100J	J	AA	10 ohm,1/4W
R814	VRS-TV2AB332J	J	AA	3.3 kohms,1/10W
R815,816	VRD-ST2CD103J	J	AA	10 kohm,1/6W
R817,818	VRS-TV2AB102J	J	AA	1 kohm,1/10W
R819	VRD-ST2CD221J	J	AA	220 ohms,1/6W
R820	VRS-TV2AB102J	J	AA	1 kohm,1/10W
R821	VRD-ST2CD151J	J	AA	150 ohms,1/6W
R822	VRD-ST2EE220J	J	AA	22 ohms,1/4W
R823	VRD-ST2CD102J	J	AA	1 kohm,1/6W
R824	VRS-TV2AB273J	J	AA	27 kohms,1/10W
R825	VRS-TV2AB823J	J	AA	82 kohms,1/10W
R826	VRS-TV2AB272J	J	AA	2.7 kohms,1/10W
R827	VRS-TV2AB273J	J	AA	27 kohms,1/10W
R828	VRS-TV2AB122J	J	AA	1.2 kohms,1/10W
R829	VRD-ST2CD683J	J	AA	68 kohms,1/6W
R843	VRD-ST2CD102J	J	AA	1 kohm,1/6W
R851	VRD-ST2CD331J	J	AA	330 ohms,1/6W
R852~855	VRS-TV2AB104J	J	AA	100 kohm,1/10W
R861~863	VRS-TV2AB222J	J	AA	2.2 kohms,1/10W
R872	VRD-RT2HD2R2J	J	AA	2.2 ohms,1/2W
R873	VRD-ST2CD562J	J	AA	5.6 kohms,1/6W
R874	VRS-TV2AB222J	J	AA	2.2 kohms,1/10W
R876	VRS-TV2AB154J	J	AA	150 kohms,1/10W
R877	VRS-TV2AB683J	J	AA	68 kohms,1/10W
R880	VRS-TV2AB473J	J	AA	47 kohms,1/10W
R901	VRD-ST2CD152J	J	AA	1.5 kohms,1/6W
R902	VRD-ST2CD563J	J	AA	56 kohms,1/6W
R903	VRS-TV2AB473J	J	AA	47 kohms,1/10W
R904	VRS-TV2AB271J	J	AA	270 ohms,1/10W
R905	VRS-TV2AB103J	J	AA	10 kohm,1/10W
R906	VRD-ST2CD152J	J	AA	1.5 kohms,1/6W
R907	VRD-ST2CD103J	J	AA	10 kohm,1/6W
R909	VRS-TV2AB183J	J	AA	18 kohms,1/10W
R910	VRS-TV2AB333J	J	AA	33 kohms,1/10W

OTHER CIRCUITRY PARTS

BI605/CNS605	QCNWN0179SJZZ	J	AF	Connector Ass'y,7/7Pin
BI651/CNS651	QCNWN0177SJZZ	J	AC	Connector Ass'y,2/2Pin
BI652/CNS652	QCNWN0194SJZZ	J	AC	Connector Ass'y,2/2Pin
BI702/CNS702	QCNWN0181SJZZ	J	AF	Connector Ass'y,13/13Pin
BI706/CNS706	QCNWN0185SJZZ	J	AC	Connector Ass'y,3/3Pin
BI707/CNS707	QCNWN0125SJZZ	J	AE	Connector Ass'y,3/3Pin
BI801/CNS801	QCNWN0186SJZZ	J	AF	Connector Ass'y,8/8Pin
BI802/CNS802	QCNWN0187SJZZ	J	AE	Connector Ass'y,7/7Pin
BI803/CNS803	QCNWN0188SJZZ	J	AE	Connector Ass'y,6/6Pin
BI805/CNS805	QCNWN0189SJZZ	J	AD	Connector Ass'y,3/3Pin
BI901/CNS901	QCNWN0176SJZZ	J	AE	Connector Ass'y,7/7Pin
CFM901	————		—	Flat Wire,2Pin (Supplies at REF.No.PWB-D)
CFW601	QCNWN0201SJZZ	J	AB	Flat Wire,5Pin
CFW701	QCNWN0200SJZZ	J	AB	Flat Wire,2Pin
CFW704	QCNWN0183SJZZ	J	AD	Flat Wire,12Pin
CFW806	QCNWN0191SJZZ	J	AB	Flat Wire,3Pin
CFW807	QCNWN0182SJZZ	J	AB	Flat Wire,2Pin
CNP101	QCNCM931HAFZZ	J	AC	Plug,8Pin
CNP301	QCNCM602BAFZZ	J	AA	Plug,2Pin
CNP604	QCNCM010NAWZZ	J	AC	Plug,13Pin
CNP605	QCNCM705GAFZZ	J	AB	Plug,7Pin
CNP651	QCNCM998BAFZZ	J	AC	Plug,2Pin
CNP652,653	QCNCM998BAFZZ	J	AC	Plug,2Pin
CNP702	QCNCM004NSJZZ	J	AC	Plug,13Pin
CNP703	QCNCM010MAWZZ	J	AC	Plug,12Pin
CNP705	QCNCM932BAFZZ	J	AA	Plug,2Pin
CNP706	QCNCM932CAFZZ	J	AA	Plug,3Pin
CNP707	QCNCM603CAFZZ	J	AB	Plug,3Pin
CNP803	QCNCM932FAFZZ	J	AC	Plug,6Pin
CNP804	QCNCM931BAFZZ	J	AA	Plug,2Pin
CNP805	QCNCM999CAFZZ	J	AG	Plug,3Pin
CNP901	————		—	Plug,7Pin (Supplies at REF.No.PWB-D)
CNS101	QCNWN0175SJZZ	J	AG	Connector Ass'y,8Pin
CNS604	QCNCW010NAWZZ	J	AC	Socket,13Pin
CNS703	QCNCW010MAWZZ	J	AD	Socket,12Pin
CNS704	QCNCW623MAFZZ	J	AC	Socket,12Pin
CNS705	QCNWN0184SJZZ	J		Connector Ass'y,2Pin
CNS804	QCNWN0193SJZZ	J	AB	Connector Ass'y,2Pin
⚠ F651	QFS-C322ASJNI	J	AF	Fuse,T3.15A L 250V
⚠ F652	QFS-C132ASJNI	J	AH	Fuse,T1.25A L 250V
FE301	RTUNS0012AWZZ	J	AV	FM Front End
J601	QJAKM0001SJZZ	J	AG	Jack,Headphones
J801	VHPGP1F32T/-1	J	AP	Jack,CD Digital Output
LCD701	RV-LX0007SJZZ	J	AR	LCD Display
M701	RMOTV0409AFZZ	J	AL	Motor [JOG]
M801	RMOTV0409AFZZ	J	AL	Motor [CD Lid]
M901(237-9)	9GD192112344	J	AY	Motor with Pulley [Tape]
NM801	RMOTV0409AFM1	J	AN	Motor with Gear [Sled]
NM802	RMOTV0408AFM3	J	AN	Motor with Chassis [Spindle]
NSW801	QSW-F9001AWZZ	J	AE	Switch,Push Type [Pickup In]
PH901	————		—	Photo Interrupter (Supplies at REF.No.PWB-E)
⚠ RLY601	RRLYD0004SJZZ	J	AG	Relay
RX701	VHLN64H380A-1	J	AK	Remote Sensor,N64H380A
SO301	QTANC0001SJZZ	J	AF	Socket,FM Antenna
SO401	QSOCJ0003SJZZ	J	AG	Jack,Video/AUX
SO601	QTANA0007SJZZ	J	AF	Terminal,Speaker
⚠ SO651	QSOCA0004SJZZ	J	AH	Socket,AC Power Input
SOL901(237-4)	9GD19212118	J	AP	Solenoid Ass'y
SW700	QSW-Z0001SJZZ	J	AF	Switch,Push Type [JOG]
SW709	QSW-K0002SJZZ	J	AC	Switch,Key Type [ON/STAND-BY]
SW710	QSW-K0002SJZZ	J	AC	Switch,Key Type [CLOCK/TIMER/SLEEP]
SW711	QSW-K0002SJZZ	J	AC	Switch,Key Type [TUNING UP]
SW712	QSW-K0002SJZZ	J	AC	Switch,Key Type [PLAY/CD PAUSE]
SW713	QSW-K0002SJZZ	J	AC	Switch,Key Type [VOLUME SELECT]
SW714	QSW-K0002SJZZ	J	AC	Switch,Key Type [DISPLAY MODE]
SW715	QSW-K0002SJZZ	J	AC	Switch,Key Type [ASPM]
SW716	QSW-K0002SJZZ	J	AC	Switch,Key Type [EON]
SW717	QSW-K0002SJZZ	J	AC	Switch,Key Type [PTY.TI]

NO.	PARTS CODE	★	PRICE RANK	DESCRIPTION
SW718	QSW-K0002SJZZ	J	AC	Switch,Key Type [SURROUND]
SW721	QSW-K0002SJZZ	J	AC	Switch,Key Type [MEMORY/SET]
SW722	QSW-K0002SJZZ	J	AC	Switch,Key Type [BASS/TREBLE]
SW723	QSW-K0002SJZZ	J	AC	Switch,Key Type [BAND]
SW724	QSW-K0002SJZZ	J	AC	Switch,Key Type [REC.PAUSE]
SW725	QSW-K0002SJZZ	J	AC	Switch,Key Type [STOP/CLEAR]
SW726	QSW-K0002SJZZ	J	AC	Switch,Key Type [TUNING DOWN]
SW727	QSW-K0002SJZZ	J	AC	Switch,Key Type [FUNCTION]
SW728	QSW-K0002SJZZ	J	AC	Switch,Key Type [VOLUME/JOG]
SW730	QSW-K0002SJZZ	J	AC	Switch,Key Type [CD Lid Open/Close]
SW802	QSW-B0001SJZZ	J	AG	Switch,Lever Type [CD Lid]
SW901(237-7)	9GD640101210	J	AE	Switch,Leaf Type [Fool Proof]
SW902(237-8)	9GD640101210	J	AE	Switch,Leaf Type [Cam]

CD MECHANISM PARTS

301	NGERH0586AFZZ	J	AC	Gear,Middle
302	NGERH0587AFZZ	J	AC	Gear,Drive
303	MLEVP1054AFZZ	J	AC	Rail,Guide
304	NSFTM0291AFFW	J	AD	Shaft,Guide
305	PCUSG0613AFZZ	J	AC	Cushion
⚠306	DCTRH8004SJ01	J	BC	Pickup Unit Ass'y
306- 1	————		—	Pickup Unit (Not Replacement Item)
306- 2	NGERR0043AFZZ	J	AC	Gear,Rack
306- 3	MSPRC0961AFZZ	J	AA	Spring,Rack
307	PCOVP1333AFSA	J	AF	Cover,Mechanism
701	XBSSD26P06000	J	AA	Screw,ø2.6×6mm
702	XHBSD20P05000	J	AA	Screw,ø2×5mm
703	XBBSD20P03000	J	AA	Screw,ø2×3mm
704	LX-WZ1070AFZZ	J	AA	Washer,ø1.5×ø3.8×0.25mm
NM801	RMOTV0409AFM1	J	AN	Motor with Gear [Sled]
NM802	RMOTV0408AFM3	J	AN	Motor with Chassis [Spindle]
NSW801	QSW-F9001AWZZ	J	AE	Switch,Push Type [Pickup In]

CABINET PARTS

201	CPNLC1047SJ02	J		Front Panel Ass'y [XL-60H]
201	CPNLC1047SJ04	J		Front Panel Ass'y [XL-70H]
201- 1	————		—	Front Panel (Not Replacement Item)
201- 2	JKNBZ0036SJSA	J	AE	Button,Operation B
201- 3	PCOVS3004SJFW	J	AC	Shield Cover
201- 4	PCUSG0003SJZZ	J	AC	Cushion,Leg
201- 5	QCNWN0219SJZZ	J	AC	Lead Wire with Lug
201- 6	GDORF0012SJSA	J	AH	Cassette Holder [XL-60H]
201- 6	GDORF0013SJSA	J	AH	Cassette Holder [XL-70H]
201- 7	HDECP0001SJSA	J	AF	Decoration Plate,LCD Display
201- 8	HDECP0002SJSA	J	AF	Decoration Plate,Cassette Holder
201- 9	HDECQ0028SJSA	J	AE	LCD Window
201-10	HDECQ0029SJSA	J	AE	Cassette Holder Window
201-11	JKNBZ0035SJSB	J	AF	Button,Operation A
201-12	MSPRD0006SJFJ	J	AC	Spring,Cassette Holder
201-13	LX-EZ0001SJFN	J	AB	Screw,ø2.5×10mm
203	CGERH0001SJ01	J	AF	Cassette Holder Damper Gear Ass'y
204	HDECQ0034SJSA	J	AG	Panel,CD Lid [XL-60H]
204	HDECQ0034SJSB	J	AF	Panel,CD Lid [XL-70H]
205	LANGF0021SJFF	J	AF	Bracket,CD Lid
206	MSPRC0006SJFJ	J	AB	Spring,CD Eject Button
208	HDECQ0033SJSA	J	AD	Ring,JOG Dial Knob
209	JKNBK0025SJSB	J	AC	Knob,JOG Dial
210	GCABC1040SJSA	J	AK	Top Cabinet [XL-60H]
210	GCABC1040SJSB	J	AK	Top Cabinet [XL-70H]
212	GDORT0004SJSA	J	AG	CD Lid [XL-60H]
212	GDORT0004SJSB	J	AK	CD Lid [XL-70H]
214	JKNBZ0040SJSA	J	AE	Button,CD Eject [XL-60H]
214	JKNBZ0040SJSB	J	AC	Button,CD Eject [XL-70H]
216	CHLDM1002SJ01	J	AH	Stabilizer Ass'y
216- 1	————		—	Stabilizer (Not Replacement Item)
216- 2	PMAGF0002AWZZ	J	AE	Magnet
217	GITAS0003SJSA	J	AG	Side Panel,Left [XL-60H]
217	GITAS0003SJSB	J	AK	Side Panel,Left [XL-70H]
218	GITAS0004SJSA	J	AG	Side Panel,Right [XL-60H]
218	GITAS0004SJSB	J	AK	Side Panel,Right [XL-70H]
219	TLABS0003SJZZ	J	AD	Label,Class 3A
220	TLABS0004SJZZ	J	AC	Label,Laser
221	GCABB1022SJSB	J	AG	Rear Panel
222	PCOVS3001SJFW	J	AG	Bracket,FM/AM Socket/Video/AUX/Speaker Terminal
223	LCHSM0004SJFW	J	AN	Main Chassis
224	LANGF0023SJFW	J	AD	Bracket,Sub Transformer
225	LHLDW1001SJZZ	J	AD	Nylon Band
226	QCNWN0148SJZZ	J	AD	Lead Wire with Lug
⚠227	QFSHD0001AWZZ	J	AB	Holder,Fuse
228	LANGK0019SJFW	J	AB	Bracket,Display PWB/Main PWB
229	PRDAR0017SJFW	J	AP	Heat Sink,Power Amp. PWB
230	PRDAR0018SJFW	J	AH	Heat Sink,Main PWB
231	PCOVS3003SJFW	J	AD	Shield Cover,Main PWB
232	PSHEP0001SJZZ	J	AF	Sheet,LCD Display
233	LHLDZ1010SJSA	J	AE	Holder,LCD Display
234	LHLDZ1022SJSA	J	AB	Holder,LED
237	CMECB0004SJ01	J	BC	Tape Mechanism Ass'y
237- 1	94R19210703	J	AE	Belt,FF/REW
237- 2	9GD19210943	J	AG	Belt,Main
237- 3	94R192104309	J	AG	Pinch Roller Arm Ass'y
237- 4(SOL901)	9GD19212118	J	AP	Solenoid Ass'y
237- 5	9GD62161401	J	AN	Head,Erase
237- 6	94R62010111	J	AT	Head,Record/Playback
237- 7(SW901)	9GD640101210	J	AE	Switch,Leaf Type [Fool Proof]
237- 8(SW902)	9GD640101210	J	AE	Switch,Leaf Type [Cam]
237- 9(M901)	9GD192112344	J	AY	Motor with Pulley [Tape]
237-10(PWB-D)	9GD192121303	J	AZ	Tape Mechanism PWB Ass'y
237-11(PWB-E)	9GD192121304	J	AW	Tape Mechanism PWB Ass'y
238	QCNWN0147SJZZ	J	AC	Lead Wire with Lug
240	LHLDZ1023SJZZ	J	AD	Holder,JOG Motor
241	LHLDZ1024SJZZ	J	AC	Holder,JOG Motor Tray
242	LHLDZ1026SJZZ	J	AC	Holder,JOG Motor Guide
243	NBLTK0001SJZZ	J	AA	Belt,JOG Motor
244	NGERW0001SJZZ	J	AD	Gear,Worm,JOG Motor
245	NGERW0002SJZZ	J	AD	Wheel,JOG Worm
246	NPLYP0001SJZZ	J	AB	Pulley,JOG Motor
247	PCOVU9001SJZZ	J	AC	Sheet,JOG Motor Guide Holder
248	LANGF0011SJZZ	J	AD	Bracket,Heat Sink, Power Amp. PWB
249	LANGT0001SJFW	J	AD	Bracket,Power Amp. PWB/Main PWB
250	PCOVP1001SJSB	J	AG	Cover,Heat Sink, Power Amp. PWB
251	NPLYP0001SJZZ	J	AB	Pulley,CD Lid Motor
252	LHLDZ1031SJZZ	J	AE	Holder,CD Lid Motor
253	NBLTK0002SJZZ	J	AC	Belt,CD Lid Motor
254	NGERW0001SJZZ	J	AD	Gear,Worm,CD Lid Motor
255	NGERW0003SJZZ	J	AD	Gear,CD Lid Motor Worm Gear
256	TSPC-0107SJZZ	J	AC	Label,Specifications [XL-60H for Europe]
256	TSPC-0108SJZZ	J	AC	Label,Specifications [XL-60H for U.K.]
256	TSPC-0111SJZZ	J	AC	Label,Specifications [XL-70H for Europe]
256	TSPC-0112SJZZ	J	AC	Label,Specifications [XL-70H for U.K.]
257	TLABN0070SJZZ	J	AC	Label,Serial No. [XL-60H]
257	TLABN0072SJZZ	J		Label,Serial No. [XL-70H]
601	XEBSD25P10000	J	AA	Screw,ø2.5×10mm
603	XEBSF25P08000	J	AA	Screw,ø2.5×8mm
604	XJBSD30P08000	J	AA	Screw,ø3×8mm
605	LX-JZ0001SJFD	J	AA	Screw,ø3×10mm
608	XHBSD20P05000	J	AA	Screw,ø2×5mm
609	XEBSD25P14000	J	AA	Screw,ø2.5×14mm
610	XESSD25P12000	J		Screw,ø2.5×12mm
611	XESSD30P10000	J	AA	Screw,ø3×10mm
612	XHBSD30P06000	J	AA	Screw,ø3×6mm
613	XJBSF30P10000	J	AA	Screw,ø3×10mm
614	XJBSD30P10000	J	AA	Screw,ø3×10mm
615	LX-EZ0001SJFN	J	AB	Screw,ø2.5×10mm
616	XEBSF25P10000	J	AC	Screw,ø2.5×10mm
617	XHBSD40P06000	J	AA	Screw,ø4×6mm

ACCESSORIES/PACKING PARTS (For Europe)

NO.	PARTS CODE	★	PRICE RANK	DESCRIPTION
⚠	QACCE0001SJZZ	J	AH	AC Power Supply Cord
	QANTL0002SJZZ	J	AM	AM Loop Antenna
	QANTW0002SJZZ	J	AH	FM Antenna
	SPAKA0040SJZZ	J	AG	Packing Add.,Top [For Europe Only]
	SPAKA0041SJZZ	J	AG	Packing Add.,Bottom [For Europe Only]
	SPAKA0052SJZZ	J		Packing Add.,Side [For Europe Only]
	SPAKC0101SJZZ	J	AM	Packing Case [XL-60H]
	SPAKC0103SJZZ	J	AQ	Packing Case [XL-70H]
	SPAKP0005SJZZ	J	AC	Polyethylene Bag,Unit [For Europe Only]
	SPAKZ0019SJZZ	J	AC	Protection Sheet,Top/Bottom [For Europe Only]
	SSAKA0002SJZZ	J	AE	Polyethylene Bag,Accessories
	TINSZ0056SJZZ	J	AM	Operation Manual
	TLABE0054SJZZ	J		Label,Bar Code,Packing Case
	TLABM0022SJZZ	J	AC	Label,Feature [XL-60H]
	TLABM0024SJZZ	J	AD	Label,Feature [XL-70H]
	TLABZ0030SJZZ	J	AC	Label,Saving Energy [For Europe Only]
	RRMCG0014SJSB	J	AS	Remote Control
•	GFTAB1021AWSB	J		Battery Lid,Remote Control

ACCESSORIES/PACKING PARTS (For U.K.)

NO.	PARTS CODE	★	PRICE RANK	DESCRIPTION
⚠1	QACCB0001SJ00	J	AW	AC Power Supply Cord
2	QANTL0002SJZZ	J	AM	AM Loop Antenna
3	QANTW0002SJZZ	J	AH	FM Antenna
4	RRMCG0014SJSB	J	AS	Remote Control
• 4-1	GFTAB1021AWSB	J		Battery Lid,Remote Control
5	SPAKA0043SJZZ	J	AK	Packing Add.,Left/Right [For U.K. Only]
6	SPAKC0110SJZZ	J	AN	Packing Case [XL-60H]
6	SPAKC0111SJZZ	J	AN	Packing Case [XL-70H]
7	SPAKP0002SJZZ	J	AD	Polyethylene Sheet,Unit [For U.K. Only]
8	SPAKP0003SJZZ	J	AC	Polyethylene Sheet,AC Power Supply Cord [For U.K. Only]
9	SSAKA0002SJZZ	J	AE	Polyethylene Bag,Accessories
10	TINSE0037SJZZ	J	AE	Operation Manual
11	TLABM0022SJZZ	J	AC	Label,Feature [XL-60H]
11	TLABM0024SJZZ	J	AD	Label,Feature [XL-70H]
12	TINSE0042SJZZ	J	AB	Quick Guide [For U.K. Only]
13	TLABE0054SJZZ	J		Label,Bar Code,Packing Case
14	TCADN0001SJZZ	J	AE	R-Card [For U.K. Only]

P.W.B. ASSEMBLY (Not Replacement Item)

PWB-A1~10	DCEKL0002SJ03	J	—	Main/Display/CD/LED/ Headphones/Open•Close Switch/JOG Switch/Digital Out/ CD Lid/Washer (Combined Ass'y)
⚠PWB-B1,2	DCEKJ0005SJ06	J	—	Power,Power Amp. (Combined Ass'y)
PWB-C	QPWBF3895AFZZ	J	AC	CD Motor (PWB Only)
PWB-D	9GD192121303	J	—	Tape Mechanism
PWB-E	9GD192121304	J	—	Tape Mechanism

OTHER SERVICE PART

	UDSKA0004AFZZ	J	AZ	CD Pickup Lens Cleaner Disc

CP-XL60H

SPEAKER BOX PARTS

	GBOXS0003SJZZ	J	BF	Speaker Ass'y,Left/Right
701	HSY093SPK010	J		Front Panel Ass'y
702	HSY093SPK020	J		Net Frame Ass'y
703	HSY093SPK030	J		Speaker Box Ass'y
704	9GDHSY041SPK04	J	AK	Spacer Board
705	9GDHSY042SPK03	J	AH	Duct Pipe
706	9GDHSY041SPK06	J	AK	Cord,Speaker
707	9GDHSY041SPK08	J	AG	Screw,ø4×16mm
708	HSY093SPK040	J		Label,Specifications
709	PGUMM0001SJSB	J		Net Catcher
SP601,602	VSPA010PB054N	J		Speaker,Woofer
SP603,604	RALMB0001SJZZ	J	AH	Speaker,Tweeter

PACKING PARTS

	SPAKA0035SJZZ	J		Speaker Add. [Europe Only]
	SPAKC0089SJZZ	J		Packing Case [Europe Only]
	SPAKP0006SJZZ	J		Polyethylene Bag,Speaker [For Europe]
	SPAKZ0011SJZZ	J		Bottom Pad,Speaker [Europe Only]
	SPAKZ0012SJZZ	J		Center Pad,Speaker [Europe Only]
1	9GDHSY041SPK10	J	AE	Polyethylene Bag,Speaker [For U.K.]
2	SPAKA0045SJZZ	J		PackingAdd.,Top/Bottom, Speaker [U.K. Only]

CP-XL70H

SPEAKER BOX PARTS

701	HSY094SPK010	J	AP	Net Frame Ass'y
702	HSY094SPK020	J	AK	Speaker Box Ass'y
703	9GDHSY042SPK03	J	AH	Duct Pipe
704	PGUMM0002SJSA	J		Net Catcher
705	HDECQ0035SJSA	J		Ring,Woofer
706	9GDHSY042SPK07	J	AG	Capacitor,3.3 µF,50V
707	LX-MZ0003SJFN	J		Screw,ø4×20mm
708	LX-MZ0002SJFN	J	AH	Screw,ø3×12mm
709	HSY094SPK030	J	AD	Label,Specifications
710	9GDHSY042SPK09	J	AG	Absorber
711	9GDHSY041SPK06	J	AK	Speaker Cord A
712	9GDHSY042SPK05	J	AG	Speaker Cord B
SP601,602	VSPA010WB064N	J	AX	Speaker,Woofer
SP603,604	VSP00DMTB194N	J	AX	Speaker,Tweeter

PACKING PARTS

	SPAKA0035SJZZ	J		Speaker Add. [Europe Only]
	SPAKC0089SJZZ	J		Packing Case [Europe Only]
	SPAKP0006SJZZ	J		Polyethylene Bag,Speaker [For Europe]
	SPAKZ0011SJZZ	J		Bottom Pad,Speaker [Europe Only]
	SPAKZ0012SJZZ	J		Center Pad,Speaker [Europe Only]
1	9GDHSY041SPK10	J	AE	Polyethylene Bag,Speaker [For U.K.]
2	SPAKA0047SJZZ	J		Packing Add.,Top/Bottom, Speaker [U.K. Only]

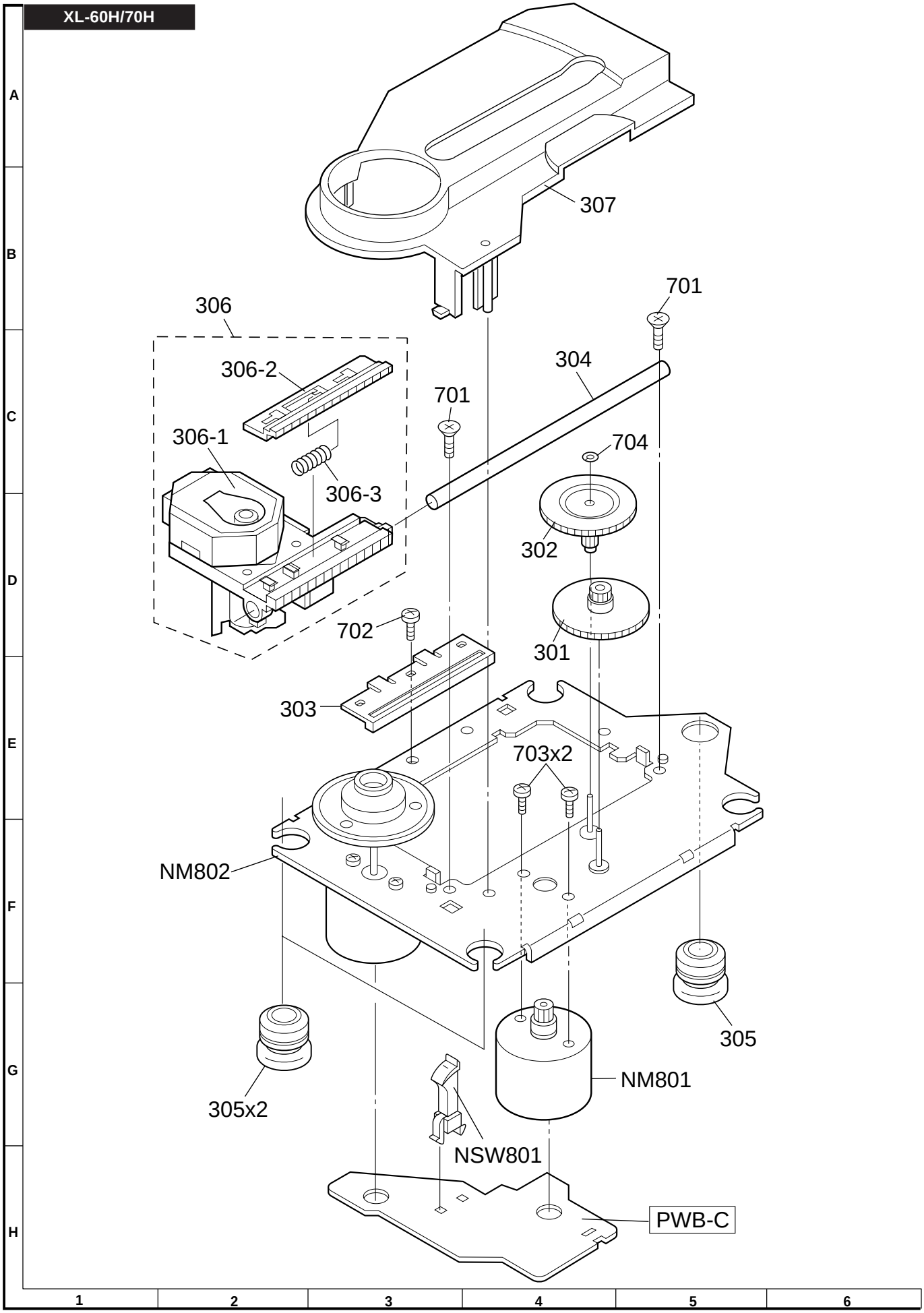
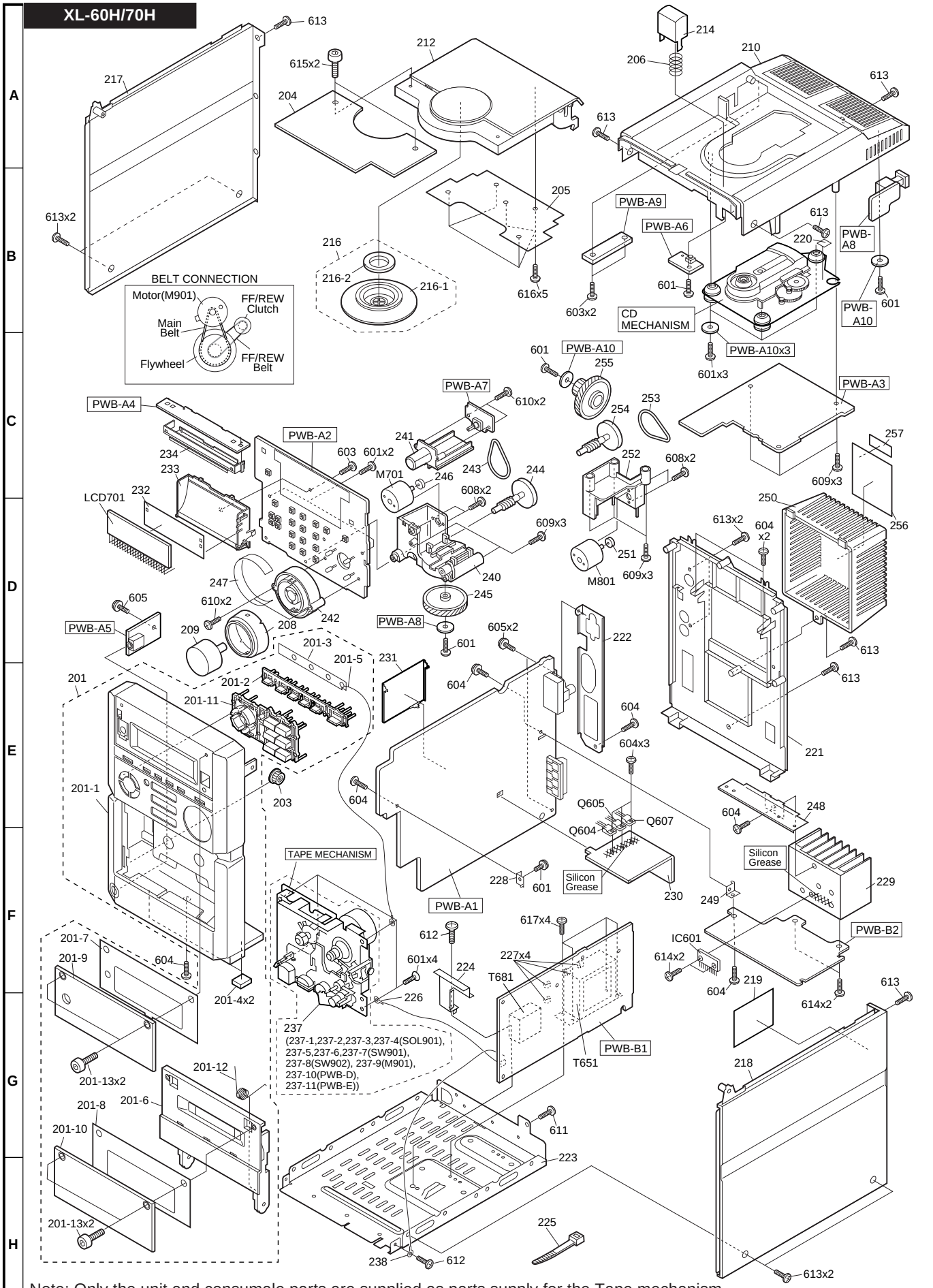


Figure 7 CD MECHANISM EXPLODED VIEW



Note: Only the unit and consumale parts are supplied as parts supply for the Tape mechanism.

Figure 8 CABINET EXPLODED VIEW

CP-XL60H

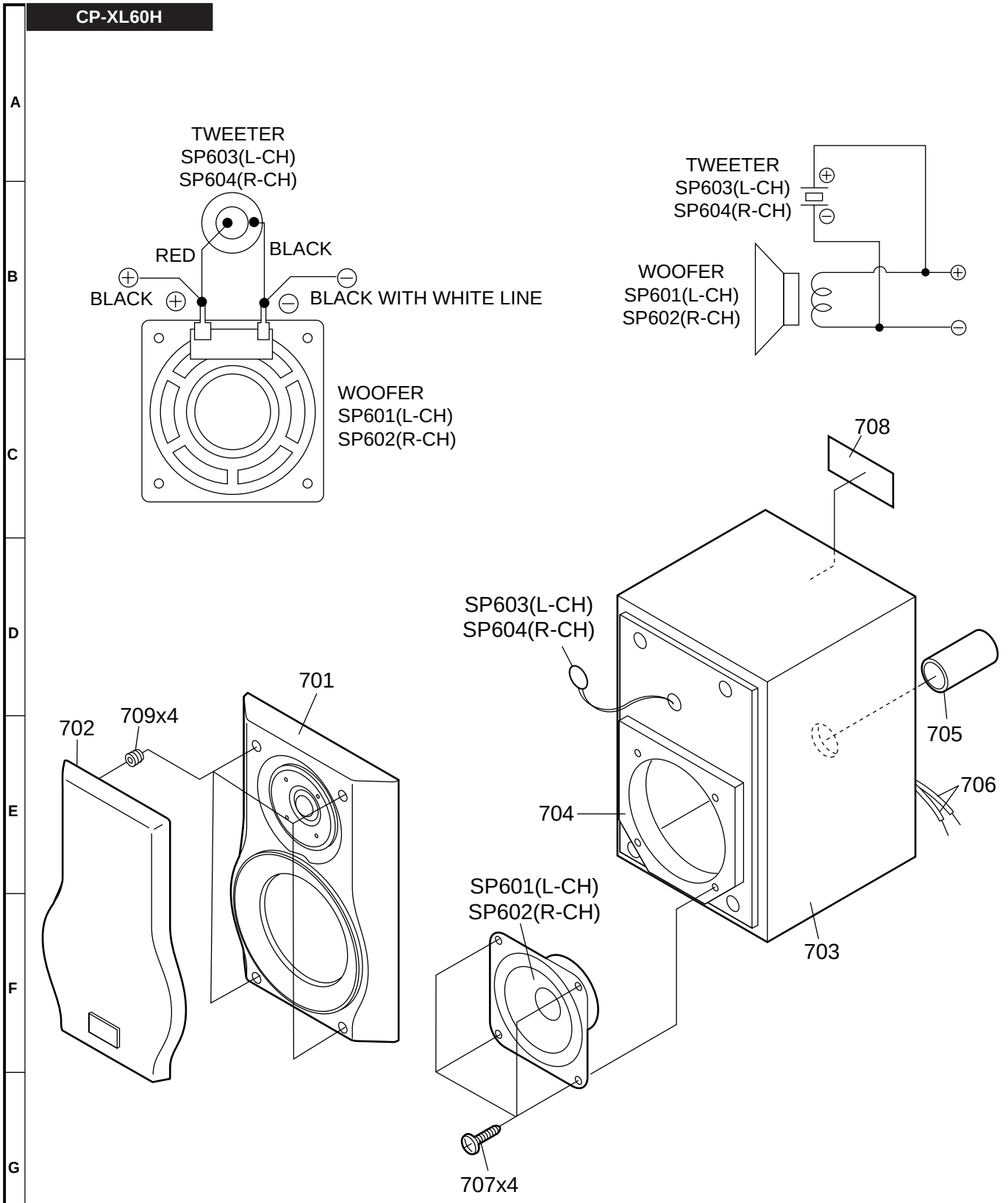


Figure 9 SPEAKER EXPLODED VIEW (1/2)

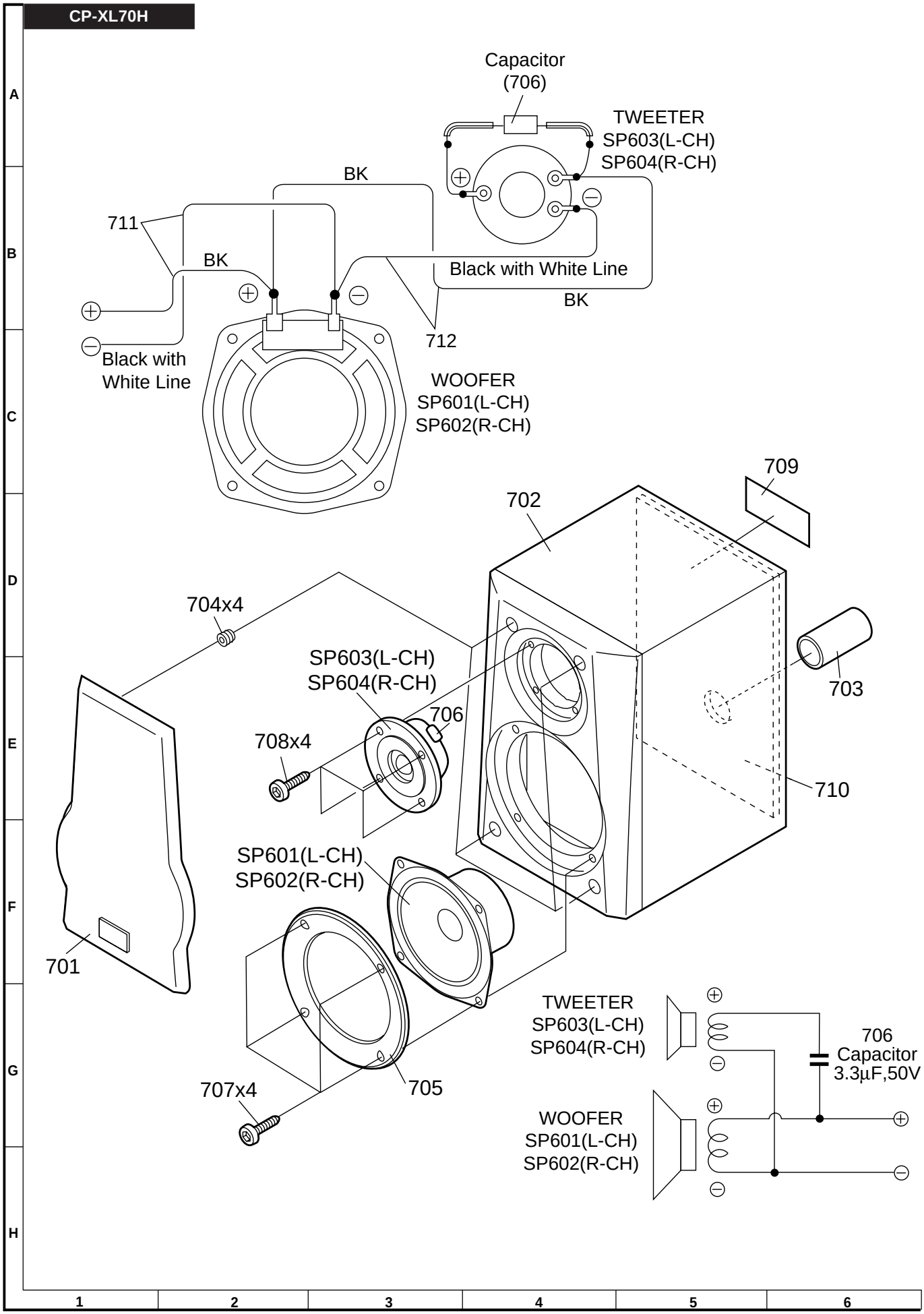


Figure 10 SPEAKER EXPLODED VIEW (2/2)

PACKING OF METHOD (FOR U.K. ONLY)

XL-60H/70H

1. AC Power Supply Cord	QACCB0001SJ00
2. AM Loop Antenna	QANTL0002SJZZ
3. FM Antenna	QANTW0002SJZZ
4. Remote Control	RRMCG0014SJSB
5. Packing Add., Left/Right	SPAKA0043SJZZ
6. Packing Case [XL-60H]	SPAKC0110SJZZ
6. Packing Case [XL-70H]	SPAKC0111SJZZ
7. Polyethylene Sheet, Unit	SPAKP0002SJZZ
8. Polyethylene Sheet, AC Power Supply Cord	SPAKP0003SJZZ
9. Polyethylene Bag, Accessories	SSAKA0002SJZZ
10. Operation Manual	TiNSE0037SJZZ
11. Feature Label [XL-60H]	TLABM0022SJZZ
11. Feature Label [XL-70H]	TLABM0024SJZZ
12. Quick Guide	TiNSE0042SJZZ
13. Bar Code Label, Packing Case	TLABE0054SJZZ
14. R-Card	TCADN0001SJZZ

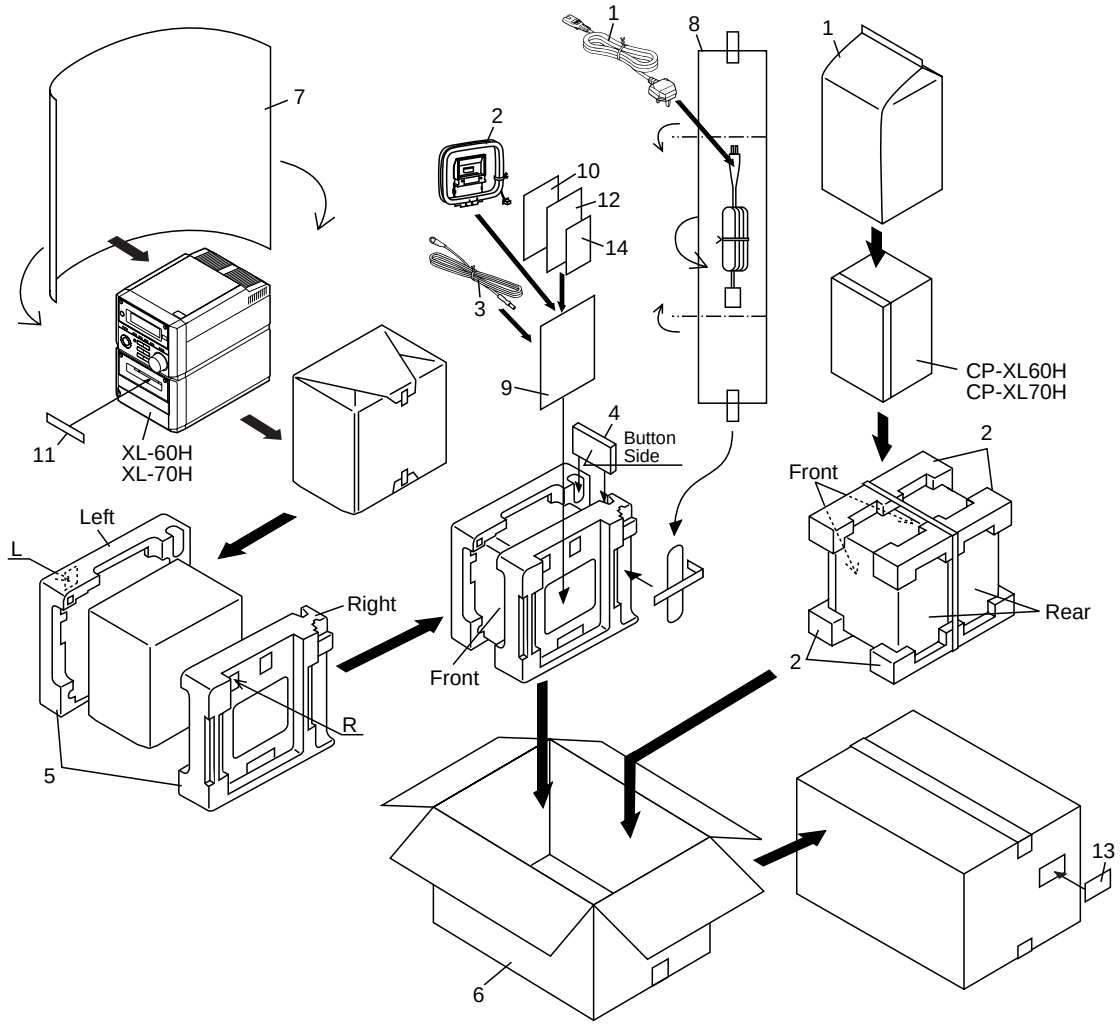
CP-XL60H

1. Polyethylene Bag, Speaker	9GDHSY041SPK10
2. Packing Add., Top/Bottom, Speaker	SPAKA0045SJZZ

CP-XL70H

1. Polyethylene Bag, Speaker	9GDHSY041SPK10
2. Packing Add., Top/Bottom, Speaker	SPAKA0047SJZZ

Setting position of switches and knobs	
Tape Mechanism	STOP
Cassette Holder	CLOSE
CD Lid	CLOSE



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